Morice Land & Resource Management Plan

Morice Land and Resource Management Plan

Economic Development Action Plan (EDAP)

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BRITISH COLUMBIA

Executive Summary

The Economic Development Action Plan (EDAP) is intended to provide the Morice LRMP Table with direction on how to manage the land and resource base when considering economic development opportunities. As part of the LRMP process an Economic Development Action Plan Working Group was formed to identify economic development opportunities such that the LRMP Table, through their decision-making deliberations, could create conditions suitable for the development and promotion of these opportunities. The steps followed in creating this EDAP were as follows:

- Develop a vision with clearly defined goals for economic development;
- Through a Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis, understand the social and economic base and existing relationships between different resource sectors;
- Develop criteria for ranking opportunities with specific linkage to outlined goals;
- Identify opportunities for a broad range of economic sectors;
- Prioritize opportunities;
- Provide an Opportunity Analysis for the high priority opportunities; and,
- Provide recommendations to the LRMP Table on factors to consider when making land and resource management decisions.

Members of the Working Group felt that economic diversification as well as the maintenance and enhancement of the current way of life enjoyed by all residents in the Morice were essential factors when considering the range of opportunities to pursue. An assessment of each economic sector's strengths, weaknesses, opportunities and threats assisted in the development of sector specific strategies for economic development in the Morice EDAP. The general economic development strategy, based on the SWOT profile, is to pursue opportunities that are a good fit with the core strengths of the region.

Members of the Working Group categorized opportunities into seven economic sectors. These included; agriculture, commercial fisheries, forestry, land development and infrastructure, non-timber forest products, tourism, and minerals, oil, gas and energy. Within each sector the Working Group identified a number of economic development opportunities.

The following paragraphs provide a summary of the sector strategies considered in the EDAP. Individuals are strongly encouraged to read the complete document in order to develop a better context for this analysis.

The general forest sector strategy for economic development is to strengthen existing forest companies and promote the development of new products and markets. The opportunities selected for further technical analysis were: development of a cogeneration wood facility, production of engineered wood products, and development of a medium density fibre board mill. The technical analyses for these opportunities indicate that all three are viable operations to pursue in the Morice LRMP area.

The strategy for the mineral, oil and gas, and energy sector is to develop productive and profitable, world-class mine sites that respect social and environmental needs. Ensuring land-use certainty and collaboration with other land and resource users is a key consideration. Four opportunities were selected for further analysis. Those opportunities were; exploration and development of medium to large scale open pit mines, exploration and development of small to medium underground mining operations, construction of a copper smelter and opportunities associated with oil and gas exploration and extraction. With the exception of developing a copper smelter the remaining opportunities are worth pursuing in the Morice according to the analysis conducted for the EDAP.

The economic development strategy for tourism is focused on maintaining natural wilderness experiences and promoting the region as a wilderness attraction. Five opportunities were selected for further analysis. Those opportunities included; house boating, snowmobile tours / destination snowmobiling, commercial recreation site development, First Nations cultural heritage site development, and guided tours of historic mines / prospecting tours. A large number of opportunities were identified for this sector. This is a reflection of the interest local communities have in developing this sector of the economy. This was also evident in the outcome of the SWOT analysis.

Priorities for establishing an organized non-timber forest products sector were; to collect information on the many uses of local flora and fauna, undertake an inventory of these species, and carry out research on the harvestability and sustainability of economic activities involving these species. Three priority opportunities were selected for analysis in the non-timber forest products sector; cultural and traditional use products, manage species for pharmaceutical development, and production of willow furniture. All three opportunities were deemed viable in the Morice area.

The general strategy for the agriculture sector is focused on strengthening existing agriculture production while exploring alternative species and crop production. Those opportunities selected for further analysis were; malting or feed barley production, market gardening, and agricultural tours. Of these three opportunities only agricultural tours was found to be appropriate for consideration in the Morice. Livestock production was not analyzed as he group felt that opportunities in this industry were already well known and would be considered at the LRMP Table.

The strategy for the land development / infrastructure sector is to identify and designate properties deemed suitable for supplying specific market demands; such as recreational lot development.

Within the commercial fishery sector, the strategy is to explore economic opportunities, protect spawning grounds, and undertake salmon enhancement programs that would ensure the sustainability and long term economic viability of the resource. In addition to operating a salmon processing operation, opportunities associated with inland aquaculture sites were explored. Only the salmon processing operation was found to have potential viability in the Morice.

It should be noted that this report is only one of many pieces of information intended to assist the LRMP Table in the decision-making process. For additional information on the current state of the economy in the Morice and information on the opportunities analyzed in this report, interested individuals should refer to the Morice Land and Resource Management Plan: Socio-economic Analysis and the Ministry of Sustainable Resource Management Building Blocks.

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Introduction

Purpose

The Morice EDAP is designed to be a companion document to the *LRMP* report.

The purpose of the LRMP is to:

1. Foster economic, social and environmental sustainability through the establishment of resource management objectives for the entire plan area to ensure ecological integrity, economic prosperity and healthy human communities in the plan area;
2. Identify economic development opportunities and develop associated resource management objectives to promote economic growth in the Morice LRMP area;
3. Address area specific management requirements through the establishment of resource management zones and corresponding objectives. Resource management zones will designate specific areas in the plan area where specific management requirements need to be met and objectives will state the measurable result that is to be achieved.

Relative to the LRMP objectives the purpose of the EDAP is covered in point #2 above.

The Economic Development Action Plan is intended to provide the Morice LRMP Table with additional direction on how to manage the land and resources when considering economic development opportunities. It should be noted that this report is only one of many pieces of information intended to assist the LRMP Table in the decision-making process.

Plan Location

The Morice Land and Resource Management Plan (LRMP) area is situated on the western edge of British Columbia's Interior Plateau. The eastern slopes of the Coast Mountains bound the area to the west, Tweedsmuir Park and the headwaters of the Nechako Reservoir to the south and Takla Lake to the northeast. The Bulkley River Valley winds its way through the centre of the area and provides the only access corridor to northwestern British Columbia (Map 1). The total land area is approximately 1.5 million hectares, of which 32,607 hectares is private land.

Numerous lakes of varying sizes are scattered across the entire plan area. Of special significance are two very large bodies of water, Babine Lake, the longest and largest natural fresh-water lake in British Columbia located in the north and the Ootsa Lake/Whitesail Lake/Tahtsa Reach complex, part of the Nechako Reservoir in the south. Three major rivers flow through the area, the Bulkley, Morice and Nadina. The Morice River is internationally renowned for steelhead fishing.

The area has cool summers and cold winters. The average July temperature in the community of Houston is 21.4°C and the average January temperature is –7.4°C. The average annual rainfall is 305mm (12 inches) and total snowfall is 1640 mm (65 in).

The population of the plan area is currently estimated at 5,192. The largest community in the area is Houston, which is, located approximately 300km west of Prince George. Located along Highway 16 the District of Houston is home to about seventy percent of the plan area population, with the remainder living in smaller communities such as the Village of Granisle, the unincorporated communities of Topley and Buck Flats and First Nations settlements. There are also numerous ranches, farms and small acreages along the Highway 16 corridor where populations are conglomerated.

District of Houston

The District of Houston developed as a rail-tie cutting centre in the early 1900s. The community grew as farming, forestry and mining expanded in the area. Today the population stands at just over 4200. The most significant industries in terms of employment in the area are logging, forestry, timber processing, mining, retail trade and the resulting service and trade "spin-off" jobs.

Steelhead Fisherman

In recent years, Houston has promoted itself as the "Steelhead Capital of B.C." and there is a growing tourism market in fishing and other forms of outdoor recreation. A number of tourism operations (resorts, campsites, certified hunting and fishing guides and related businesses) provide employment and income.

Houston is located within the fertile Bulkley Valley. Some of the earliest settlers to the area were farmers and ranchers. Agriculture activity in the area consists of mainly forage and livestock production.

Village of Granisle

Granisle, located north of Houston on the western shores of Babine Lake, was built to support the Granisle and Bell Mines when they came into operation in the 1960s. During the 1970s and 80s, Granisle was a bustling mining town with a population of 2200. By the early 1990s both mines had closed and today the population of Granisle and area is approximately 450. Local residents make a livelihood mainly from tourism, logging and government services. A small number of people are also employed in mine reclamation and seasonally in mineral exploration.

Granisle Marina on Babine Lake

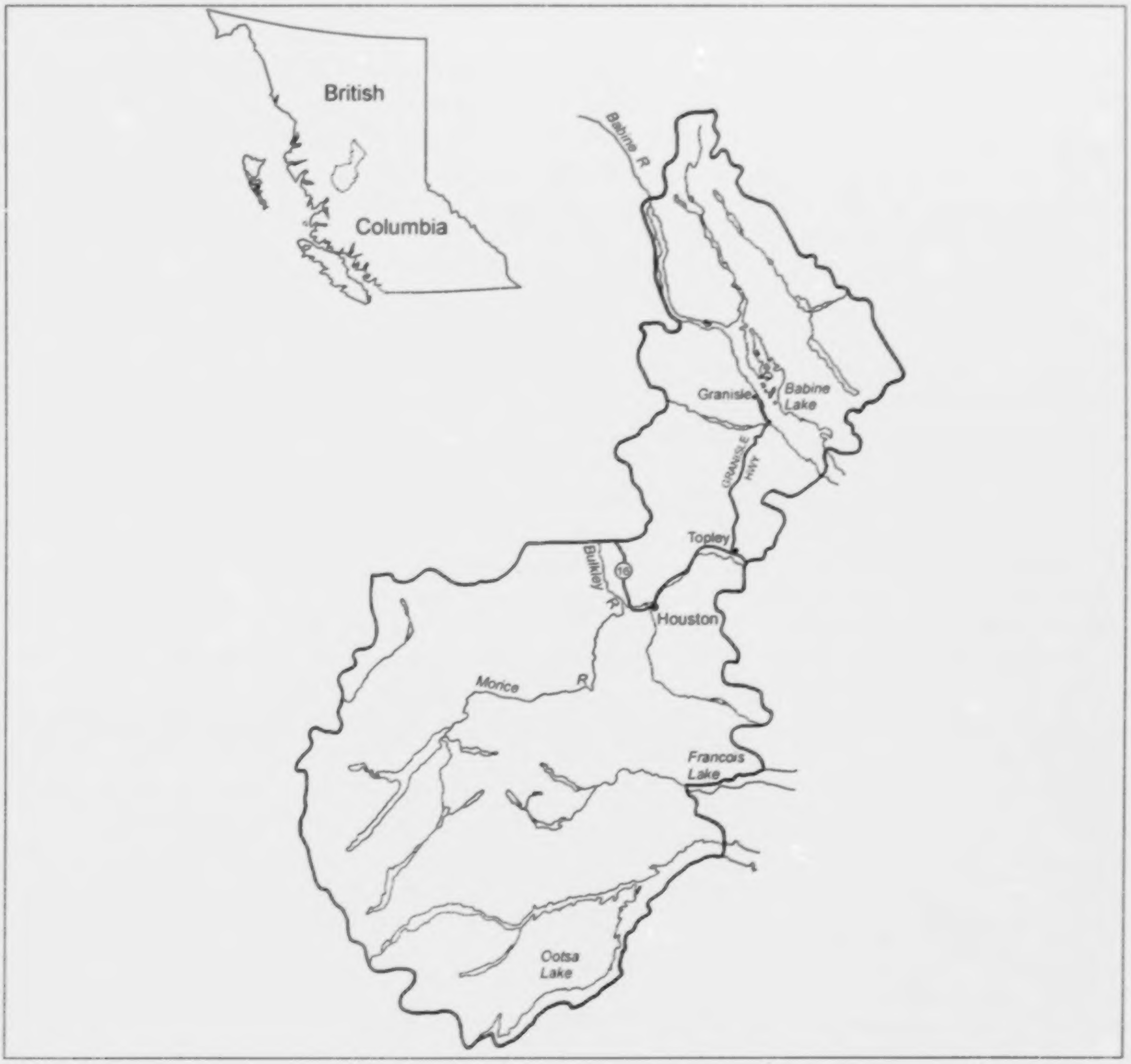
Tourism and retirement income are currently the main drivers of the area's economy. The Babine Lake area provides a variety of opportunities for recreational activity, including fishing and boating, hiking, hunting, camping, and wildlife viewing. Several new service-oriented businesses have been established as the community gears itself to support tourism activity.

Unincorporated Communities

There are several clusters of residential populations along Highway 16 and Central Babine Lake Highway Number 118 corridors. These areas include, but are not limited to, the unincorporated communities of Perow, Buck Flats, Wiley and Topley.

Topley is located along Highway 16, 31 km east of Houston. There are approximately 500 people living in the community and the surrounding area (Synergy Management Group, 1999). Topley is a rural community composed of ranches, retail businesses and services.

Map 1. Morice LRMP Plan Area


British
Columbia
Babine R
Granisle
Babine Lake
GRANISLE HWY
Topley
Bulkley R
16
Houston
Morice R
Francois Lake
Ootsa Lake

What is Economic Development?

There are many definitions used to explain what economic development is. Definitions of economic development differ depending on the scale and focus that a community or region chooses. The following definition describes how economic development can differ.

Economic development is a program, a group of policies, or activity that seeks to improve the economic well-being and quality of life for a community. Ideally, it will create and retain jobs that facilitate growth and provide a stable tax base. Economic development programs can take numerous approaches. No single strategy, policy, or program can assure success for a community. Some communities will succeed while others will have to develop their assets to become marketable.

In order to create an effective program that works for the local economy, the community must understand the five levels of development. Each level consists of various strategies that can be implemented based on their geography, economy and policies. The five levels are: organizational development, product development, market development, business development, and workforce development (Forman and Mooney 1999).

While this definition refers to a community the Morice LRMP can be seen as one large community of inter-dependant local governments.

Organizational development involves the creation and maintenance of a group, or groups, of individuals who address community needs. Product development deals with the investment of funds or labor to improve a community. Market development focuses on attracting individuals that are able to build a stronger and diversified population base. Business development promotes existing businesses and/or attracts new businesses to a community. Finally, workforce development involves strengthening the local workforce through local and or regional policies.

First Nations Involvement in Economic Development

The Morice District is not unlike any other district in Northwest British Columbia when it comes to the role First Nations play in the economy. From the first years of European settlement in the area the Wet'suwet'en, Lake Babine, Carrier and Cheslatta peoples have provided labour, raw materials and other products that have assisted in the growth of the regional economy.

More recently, the First Nations have been developing their own economic initiatives. The Office of the Wet'suwet'en has developed several ventures in cooperation with the forest industry, these include Kyah Wood and Wet'suwet'en Enterprises. Kyah Wood holds a non-replaceable timber license in the plan area and Wet'suwet'en Enterprises has developed integrated forest management expertise and through the small scale salvage program for Mountain Pine beetle. The Wet'suwet'en are currently completing a needs assessment for all their communities and are extremely interested in promoting cross-cultural understanding, probably through eco-cultural tourism. There are no year round communities within the plan area, although 53% of the territory lies within the area.

Lake Babine Nation has several economic initiatives including Woodlots at Fort Babine, west of Granisle, and Old Fort. They are also working on a community forest proposal and undertaking a market feasibility study for ecotourism. Tachet and Fort Babine are the only year round communities within the plan area.

Only small portions of the Carrier Nation and Cheslatta Nation territories fall within the plan area. Their economic initiatives therefore influence other LRMP areas.

EDAP Process Description

Process Overview

The steps followed in creating this EDAP were as follows:

- Develop a vision with clearly defined goals for economic development;
- Through a Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis understand the social and economic base and relationships between different resource sectors;
- Develop criteria for ranking opportunities (linked to goals);
- Identify opportunities for each economic sector;
- Prioritize opportunities;
- Provide an Opportunity Analysis of the high priority opportunities; and,
- Provide recommendations to the LRMP Table on factors to consider when making land and resource management decisions.

The Vision for Economic Development in the Morice

Consisting of individuals from each sector, members of the Economic Development Action Plan Working Group identified a number of views for economic development in the Morice LRMP area. Through two collaborative brainstorming session's one unified vision for economic development was generated.

"The vision for Economic Development in the Morice is to identify potential opportunities for enterprises which would contribute to developing a diversified and sustainable local economy while recognizing present and future cultural, environmental, economic and social values in the region."

Members of the Working Group felt that economic diversification and maintenance and enhancement of the current way of life enjoyed by all residents in the Morice were essential factors when considering potential opportunities to pursue.

Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis

A scan of the internal and external environment is an important part of the strategic planning process. Environmental factors internal to a region can be classified as strengths (S) or weaknesses (W), and those external to the region can be classified as opportunities (O) or threats (T). Such an analysis of the strategic environment is referred to as a SWOT Analysis.

The SWOT analysis provides information that is helpful in matching a region's resources and capabilities to the competitive environment in which it operates. As such, it is instrumental in strategy formulation and selection.

Strengths

A region's strengths are its resource capabilities that can be used as a basis for developing a competitive advantage.

Weaknesses

The absence of certain strengths may be viewed as a weakness. In some cases, a weakness may be the flip side of strength. Take the case where a region has a large amount of manufacturing capacity. While this capacity may be considered a strength that other regions do not share, it also may be considered a weakness if that manufacturing capacity is out dated and can't react quickly to changes in the economic environment.

Opportunities

The external environmental analysis may reveal certain new opportunities for regional profit and growth.

Threats

Changes in the external environment may also present threats to a region

An assessment of each sector's strengths, weaknesses, opportunities and threats assisted in the development of sector specific strategies for economic development in the Morice EDAP. In addition, the SWOT analyses aided in the identification of key opportunities, that could be positively influenced by the LRMP. These opportunities are listed in their respective sector later on in this report. A summary of the SWOT Analysis is presented in Appendix 1.

The general economic development strategy, based on the SWOT profile, for the Morice EDAP is to pursue opportunities that are a good fit to the core strengths of the region. Once these opportunities are listed, barriers to their development can be identified. Only those barriers that can be positively influenced by the LRMP are dealt with in this report.

The SWOT analyses carried out for the Morice LRMP was well attended by individuals representing a cross section of local communities. At the conclusion of the SWOT analysis exercise one significant observation was made; the majority of individuals attending the exercise felt that tourism opportunities were to become a very influential factor in the future economy of the region. Not to understate the importance of all other sectors, specifically forestry and mining, the fact remained that most people felt that the local environment was very conducive to the development of tourism opportunities.

This trend of shifting from an industrial based economy to a tourism-based economy within resource communities has been tried many times before. While not uncommon, it should be noted that such a wholesale shift cannot be accomplished over night, or even at all. The Morice has a wealth of resources from which to draw from. Every sector has potential for growth. With this in mind a diversified economy is the more desired outcome for the Morice area.

Opportunity Ranking Criteria

Prior to identifying community specific or enterprise level opportunities the Working Group developed an opportunity ranking criteria. The ranking criterion was used to prioritize opportunities within each sector. Opportunities were not ranked across sectors due to the interest in developing a diversified economy (i.e. a forestry related opportunity was not be ranked against a tourism opportunity and vice versa).

The goal of this exercise was to develop a process that would allow the group to be unbiased in assessing the relative impact or importance of an opportunity. As previously stated, the goal of the EDAP is to identify those opportunities in each sector that are able to create the greatest positive influence on the economy and provide a broad analysis of each. This information is intended to be used by the LRMP table during its decision making process.

The following steps were followed in creating the ranking criteria:

1. Goals were identified for the EDAP (the Working Group identified the goals for economic development in the Morice).

2. Goals were then categorized into logical groups. In most cases sub-categories were necessary to differentiate the intent of a specific goal(s).

3. Grouping of goals were then refined to produce a generalized statement of what is to be achieved.

4. For each category an indicator for each goal was developed (i.e. for employment one indicator was the number of jobs created by an opportunity).

5. Each indicator was then given a measure of success (i.e. a measure of low may be less than ten for a goal of maintaining or improving the number of jobs in an area while a moderate level may be ten to fifty jobs).

6. Finally, points were assigned to each category based on the measures determined by the group.

The Working Group identified the following goals:

- To provide long term sustainability
- Develop a training and educational base
- Improve infrastructure for growth
- Build confidence for investors
- Develop local leaders in management
- Promote supporting industries for the local forest sector
- Maintain healthy sustainable communities
- Diversify employment opportunities (small and large enterprises)
- Have complete First Nations involvement
- Maintain a healthy environment
- Identify criteria and economic opportunities for success
- Ensure land use decisions consider economic opportunities
- Be consistent with community values and goals
- Be economically and environmentally sustainable
- Diversify the economy

Table 1 and Table 2 illustrate the refined goals and ranking criteria developed for this process.

Table 1. Goal Categories

	CATEGORY
1	**SUSTAINABILITY**
a)	Environment (consumptive)
b)	Communities
2	**INFRASTRUCTURE "use it or loose it"**
a)	Future
b)	Present
3	**EMPLOYMENT**
a)	Quantity
b)	Quality (amount earned)
4	**CONFIDENCE**
a)	Zoning
b)	First Nations (impact to First Nations)
5	**ENVIRONMENT (risk of impact)**
6	**BUSINESS**
a)	Possible number of spin off businesses created
b)	Variety of businesses added

Table 2. Ranking Criteria

#	**Category**	**Ranking**	**Value**	**Criteria**
1	**SUSTAINABILITY**			
a)	Environment (consumptive)	**Low**	1	High volume consumption versus carrying capacity of supply
		Medium	2	Moderate volume consumption versus carrying capacity of supply
		High	3	Low volume consumption versus carrying capacity of supply
b)	Communities	**Low**	1	Unstable development; possibility of success is uncertain
		Medium	2	Moderately stable development; possibility of success is moderate
		High	3	Stable development; possibility of success is high
	INFRASTRUCTURE			**Roads, Hydro, Housing, Health, Education, Finance (availability)**
a)	Future	**Low**	1	Impact on 2 or less of the above infrastructure components
		Medium	2	Impact on 3-4 of the above
		High	3	Impact on 5-6 of the above
b)	Present	**Low**	1	Impact on 2 or less of the above infrastructure components
		Medium	2	Impact on 3-4 of the above
		High	3	Impact on 5-6 of the above
3	**EMPLOYMENT**			
a)	Quantity	**Low**	1	Refer to attached employment chart
		Medium	2	Refer to attached employment chart
		High	3	Refer to attached employment chart
b)	Quality (amount earned)	**Low**	1	less than $30,000
		Medium	2	$30,001 - $59,999
		High	3	greater than $60,000
	CONFIDENCE			
a)	Zoning	**Low**	1	Cannot facilitate exclusive resource emphasis zoning
		Medium	2	Could facilitate resource emphasis zoning
		High	3	Could easily facilitate resource emphasis zoning
b)	First Nations	**Low**	1	Development affects identified important First Nation values, or Development requires substantial negotiation before and or during the project viable and / or the negotiation process is problematic.
		Medium	2	Development affects some identified First Nation values some negotiation as required during the project although the project is viable and or the negotiation process is cumbersome
		High	3	Development affects no identified First Nations values, or Development can proceed with minimal or no First Nation Consultation and/or agreement during the project and/or the negotiation process is straightforward and clear.
5	**ENVIRONMENTAL IMPACT**	**Low**	2	User defined
		Medium	4	User defined
		High	6	User defined
6	**BUSINESS**			
a)	Possible # of spin off businesses	**Low**	1	2 or less
		Medium	2	3 - 5
		High	3	6 or more
b)	Variety of businesses added	**Low**	1	1 or less
		Medium	2	2 - 4
		High	3	4 or more

Due to the complexity of creating a rating system for environmental impact the Working Group decided to rate each opportunity based on their individual ideals of what impact an opportunity would have. A rating of high meant that an opportunity would have little or no impact on the environment. Conversely, an opportunity that had significant potential to impact the environment would be rated low.

Opportunity Identification

Members of the Working Group categorized opportunities into seven economic sectors; agriculture, commercial fishery, forestry, land development and infrastructure, non-timber forest products, tourism and minerals, oil, gas and energy. Within each sector the Working Group identified a number of economic development opportunities. A number of opportunities could have been identified in more than one sector. For example, cogeneration, while categorized in the forest sector, could have also been categorized in the minerals, oil, gas and energy sector. The rationale used to decide where an opportunity would be categorized was based on the resources required to make that opportunity viable. In the case of this example wood waste was the resource required to operate a cogeneration facility. As such it was categorized in the forestry sector.

Each opportunity was then explored for its relationship to the LMRP process. Specifically, could the LMRP influence the development of an opportunity through land use zoning or management direction? If an opportunity passed this screening it was ranked against the rest of the opportunities in that sector.

Ranking of Sector Opportunities

Every opportunity was ranked according to the criteria. Members of the Working Group independently assigned values to each opportunity for all categories/sub-categories. The maximum total value an opportunity could receive was 36. The summed ratings for each opportunity were averaged and rounded to the nearest whole number. The results of the rankings for each sector are presented at the beginning of the opportunity analysis sections further on in this report.

Following the ranking exercise a couple of observations were made. First, the use of a static set of income (amount earned) criteria was found not to be useful for ranking opportunities within certain sectors. It was, however, useful for differentiating the average income levels between sectors.

Second, employment ranges were dramatically different between a number of sectors. In order to provide a useful indicator of priority an employment chart was used. Table 3 identifies low, medium and high levels of employment within each sector. These estimates were very useful during the ranking process.

Table 3. Rating system for number of employees by sector

	Number of Jobs								
Sector	1 - 2	3 – 4	5 - 9	10 - 19	20- 49	50- 99	100- 199	200- 499	500 +
Tourism	L	L	M	M	H	H	H	H	H
Forestry	L	L	L	M	M	H	H	H	H
Non-timber	L	M	M	H	H	H	H	H	H
Land Dev/Infrastructure	L	L	M	M	H	H	H	H	H
Minerals/oil/Gas	L	L	L	L	M	M	M	H	H
Agriculture	L	M	M	H	H	H	H	H	H
Commercial Fishery	L	L	M	H	H	H	H	H	H

Source: BCSTATS, Infoline Report October 4, 2002

Technical Analysis

Once ranked the top two to four opportunities in each sector underwent a technical analysis to assess their viability for development in the Morice area. In some cases identified opportunities were deemed unsuitable for the Morice area. These opportunities were added to this report to let LRMP members know that the opportunity was considered and the reasons why it does not need to be dealt with during the decision-making process.

Building Blocks

Building Blocks have been conceived and developed by the Economic Development Branch of the Ministry of Sustainable Resource Management, under the guidance of Nancy South, Manager Economic Analysis, as an analytical tool that supports British Columbia coastal and land and resource use planning and decision-making and economic development initiatives. The Blocks contain concise business and sector information for a broad range of resource-based business types in BC. At this point, there are more than 30 Blocks either complete or in draft form. Several more Blocks have been identified as high priority by planning tables and other client groups. Additional Building Blocks will be developed over time, and some Blocks may be updated. For the most current Building Blocks, please see the Ministry of Sustainable Resource Management website, at: http://srmwww.gov.bc.ca/rmd/ecdev/

Individuals interested in more information on the economic development opportunities covered in this report or others should refer to these Building Blocks. It is to be noted that Building Blocks do not contain site specific information nor do they consider requirements for social, economic or environmental sustainability (B.C. Ministry of Sustainable Resource Management, Building Block Preamble, 2003

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Forestry	L	L	L	M	M	H	H	H	H
Non-timber	L	M	M	H	H	H	H	H	H
Land Dev/Infrastructure	L	L	M	M	H	H	H	H	H
Minerals/oil/Gas	L	L	L	L	M	M	M	H	H
Agriculture	L	M	M	H	H	H	H	H	H
Commercial Fishery	L	L	M	H	H	H	H	H	H

[illegible]

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Socio-Economic Analysis

The purpose of a socio-economic and environmental assessment (SEEA) is to provide plan architects, stakeholders and decision makers with three types of socio-economic information:

1. Background information on the socio-economic structure of the plan area and its communities, including an inventory of land and marine based resources which are, or could be, important to the area and/or province;
2. A description of the key socio-economic parameters that may be impacted by resolution of the resource use management issues to be addressed by the plan; and
3. An assessment of the expected socio-economic impacts of the plan and /or alternate management scenarios relative to a base case (usually the "status quo") scenario.

The need for, or emphasis on, each of these three categories of information will depend upon the size of the plan area, the scope of the planning initiative and the process to be followed in establishing a land and resource management plan. Consensus based planning may have greater need for extensive background information, than a consultative approach.

The background information establishes the socio-economic and environmental context for the assessment of the land and resource management options. Effort is made to limit the background information to indicators that are useful in assessing alternate resource use options.

The SEEA is designed to inform, but not drive the planning process, to be value neutral and assist consensus builders or decision makers in understanding the tradeoffs involved in different management scenarios.

Land and Resource Management Plans (LRMPs) cover relatively large areas of the province, typically the size of the Timber Supply Areas. Landscape Unit Planning and other plans for smaller areas such as the Sustainable Resource Management (SRM) Plans cover smaller areas. These Guiding Principles are relevant for all levels of land and coastal use plans, however, the size and scope of the plans will dictate the required depth and comprehensiveness of the analysis. (B.C. Ministry of Sustainable Resource Management, SEA Guidelines, 2003)

Individuals who are interested in getting further background information on the current state of the social and economic conditions in the Morice should refer to the "The Morice Land and Resource Management Plan, Socio-Economic Analysis Report". An effort has been made not to reproduce information from the SEA or Building Blocks. Instead the EDAP attempts to analyze potential economic development opportunities as they relate specifically to the Morice LRMP area. The SEA and Building Blocks should be considered companion documents to the Economic Development Action Plan.

Forestry

Introduction

Forestry is the largest basic industry in the Morice LRMP with 40 percent of the local population being dependant on this sector of the economy[1]. Forestry provides employment in a variety of areas, including timber harvesting, road building, transportation, timber processing (milling, pulp manufacturing and value-added), silviculture, export log preparation and loading, and equipment supply and maintenance. The current Allowable Annual Cut of 1,961,117m^3/yr for the Morice Timber Supply Area came into effect on October 1, 2002.

The Morice forest industry is currently dealing with a massive epidemic of Mountain Pine Beetle.

Canfor and Houston Forest Products have recently upgraded their milling operations. These upgrades were necessary to increase efficiency in response to global market for lumber and to remove bottlenecks within the mills.

There is an opportunity for smaller value-added operations to prosper if they could be provided with certainty of fibre supply on a long-term basis. However, the impact of the Mountain Pine Beetle epidemic on the timber supply puts into question the viability of a suitable long-term fibre supply[2].

First Nation communities in the Morice area are interested in getting involved in forestry. The Cheslatta First Nation has already established a mill in the southern part of the neighbouring Lakes TSA to capture some of immediate economic gains associated with the Mountain Pine Beetle infestation.

For a detailed assessment of the Forest Industry in the Morice refer to the Morice Land and Resource Management Plan: Socio-Economic Base Case.

Sector Development Strategy

Information gathered from the SWOT analysis was used to develop an economic development strategy for the forest sector. The strategy is to strengthen existing forest companies and promote the development of new products and markets. This can be achieved by:

- Maintaining a high quality wood supply;
- Maintaining reasonable access to the wood supply;
- Provide an adequate wood supply to small operations as well as major licensees;
- Ensuring management direction in land-use plans is not overly restrictive;

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[1] BC Stats, Regional district 51 - Bulkley-Nechako: demographic profile

[2] BC Ministry of Forests, 2002, Morice Timber Supply Review

- Streamlining environmental regulations governing the wood supply; and,
- Providing land-use certainty for forest companies.

These issues, if addressed, will assist in ensuring a long-term viable forest sector. Without addressing these issues production costs for lumber and secondary manufacturing will increase, placing the forest sector at a disadvantage on the world market.

Identified Opportunities

The Morice LRMP Economic Development Working Group, through a series of brainstorming sessions, identified a list of forestry related economic development opportunities. Once identified, the Working Group prioritized the opportunities using the ranking criteria. Table 4 is a listing of the opportunities and their relative rankings within the forest sector.

Table 4. Identified Forest Opportunities and rankings

Opportunities	Ranking
Incremental silviculture (i.e. spacing, pruning) forest management	22
Processing of under utilized species	22
Pellet stove pellet operation	23
Musical instrument production (supply of birch)	19
Development of a log yard	22
Log home building	23
Development of a Cogeneration Wood Facility	25
Chemical recovery from wood waste	21
Denim wood production from pine beetle timber	23
Development of engineered wood products	24
Oriented strand board mill	25
Establishment of Medium density fibre board mill	24

Applying the ranking criteria to the list of opportunities, four were selected for further analysis. Those opportunities were; development of a cogeneration wood facility, development of engineered wood products, establishment of an oriented strand board mill and establishment of a medium density fibre board mill. All but one of the top four priority opportunities, oriented stand board mill, was analyzed. The following sections explore the criteria and conditions for developing these opportunities.

For further information on these and other economic development opportunities interested individuals are asked to review the Ministry of Sustainable Resource Management, Building Blocks. Information on these Building Blocks can be obtained online at http://srmwww.gov.bc.ca/rmd/ecdev/analysis/building_blocks.htm .

Development of Cogeneration Wood Facility

Overview

Cogeneration assessed here is focused on the burning of wood waste to generate electricity and steam. Cogeneration plants can utilize a mix of inputs such as coal, residential garbage and wood waste. Four separate methods of production are possible:[3]

Finlay Forest Industries Inc., 14 MW plant in Mackenzie, BC

- ***Direct-fired combustion:*** Direct-fired combustion is the most common technology. Direct combustion involves the oxidization of wood-waste with excess air, producing hot flu gases that generate steam in the heat exchange sections of the boilers. The steam is then used to produce electricity. In an electricity only system, all of the steam is condensed in the turbine cycle. In a cogeneration system, a portion of the steam is scavenged to provide a heat source with varying levels of steam pressure.
- ***Co-firing:*** Co-firing refers to the practice of introducing wood-waste as a supplementary fuel source in high efficiency boilers, with the main fuel source usually being either coal or natural gas. This is considered the nearest term low-cost option for reducing emissions from fossil fuel electricity generating plants in the US.
- ***Thermo chemical:*** Biomass conversion into oil and gas can be performed by thermochemical technologies such as gasification, flash pyrolysis, and vacuum pyrolysis.
- ***Incineration:*** The default option for most Tier 1 burner situations is multiple chambered incineration with emissions scrubbers installed to meet the province's emission limits. As add-ons, both energy recovery for heating dry kilns and electricity production are possible with this type of system.

As existing plants in BC are mostly direct-fired, the following discussion focuses on this technology.

Opportunity Analysis

In the Northwest Region, the rationale behind the cogen concept has as much to do with environmental benefits as pure economics. The *Skeena Region Beehive Burner Phase-Out* clearly documents the implications of not dealing with the wood waste issue in a proactive manner.[4] Several times over the last nine years, the BC Government asked Tier 1 burner operators to phase out their use and find alternative methods of disposal or use.

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[3] Crane Management Consultants Ltd., 1998.

[4] Rhebergen (March 1998).

On the surface, continued operation of the burners would appear to have drawn a source of supply to a cogen facility, but underneath it is really a low-cost solution that keeps the feasibility of alternative uses alive. This is because forest companies would have had to invest significant capital into new burner technology, thereby foreclosing on future options for more productive use of wood waste. The benefits to cogeneration include:

- Conversion of wood waste (otherwise burned at present) to electricity;
- Radical reduction in environmental problems from wood waste through improved air quality and reduced greenhouse gas emissions;
- Net new jobs in trucking wood wastes and plant operation; and,
- Returns to government through PST, fuel taxes, income taxes, capital tax and property taxes

There have been two previous wood-fired electricity generation projects proposed for Houston in the early-1990s. NW Energy Corporation, a joint venture involving Pacific Energy (a subsidiary of Tersan), proposed a 60 MW generating station at Houston. At the time, the project was to be supplied with residues from Houston Forest Products, Northwood Pulp & Timber, Decker Lake Sawmills, Babine Forest Products, Pacific Inland Resource and Repap Smithers. Another proposal was driven by a joint venture between PowerGen and Destec. Both of these proposals failed to move forward.

In BC, there are five cogeneration power projects in operation, as shown in the following table.

Table 5. Cogeneration Projects in BC

Company	Location	MWe	Type	Est.
NW Energy Corp.	Williams Lake	70 MW	Electricity only, direct fired	1993
Howe Sound Pulp & Paper	Port Mellon	80 MW	Co-generation, direct fired	1993
North Island Power	Port Clements	8.4 MW	Co-generation, direct fired	1999
Canyon Power	Lytton	18MW	Co-generation, direct fired	1999
Purcell	Skookumchuk	10.8 MW	Co-generation, direct fired	1999

In recent years the number of new facilities coming on-line has increased as BC Hydro and provincial energy plans developed targets for "green" generation projects in their respective planning processes. A list of BC Hydro's approved customer-based generation projects is shown in Table 6.

Table 6. BC Hydro's Customer-Based Generation Projects

Company	Location		GW.h	Type
RFP Power Ltd.	Armstrong	Armstrong Wood Waste Cogeneration Plant	122.6	Wood Residue
West Fraser Mills Ltd.	Kitimat	Eurocan Power Project	160.0	Wood Residue
Powell River Energy Inc.	Powell River	Lois Unit 1 Upgrade	10.4	Hydro
Premier Power Corp.	Stewart	Long Lake Project	83.2	Hydro
Montenay Inc.	Burnaby	SEEGEN Project	125.0	Municipal Solid Waste

Table 7 shows an estimate of the variety of gas turbine and reciprocating engine CHP facilities completed or being planned across Canada. In addition, there are several straight combined-cycles and utility re-powering projects being proposed, which could potentially involve heat recovery.

Canada has over 5500 MWe of natural gas and wood-waste cogeneration plant - mostly installed since 1990 - with a similar amount being installed or planned for the period 2002-2005. Based on Canada's expected future industrial/commercial fuel consumption, there is a potential for another 30,000-40,000 MWe of gas and biomass cogeneration by 2020.

Table 7. Summary of Canadian Cogeneration Projects by Sector, 2001

Sector	Completed/ In construction No. of plants	Planned Mwe	Number of plants	MWe
Chemicals	7	1070	3	560
Oil industry	8	1340	2	530
Pulp and paper	12	750	6	720
Gas processing	3	190	2	200
Food processing	7	300	-	-
Steel, metals	2	115	2	400
Manufacturing	8	190	6	50
Hospitals	6	95	2	10
Universities	8	28	3	15
Municipal service	12	55	5	40
Utility re-powering	1	200	5	1800
Total	**75**	**4333**	**36**	**4325**

Source: Klein, 2001

According to the BC government's Energy Policy Task Force, the development potential of cogeneration remains very high with the main barriers being high capital costs, market access, low consumer awareness and regulatory issues.[5]

Currently West Fraser, Weldwood and Canfor are exploring the development of a local cogeneration plant with a potential developer. This cogeneration plant would assist in the elimination of the last two Tier 1 burners in the region. The project is also being planned to consume the wood waste from Decker Lake Sawmills, Babine Forest Products and Fraser Lake Sawmills and result in the termination of wood waste burning at these sites as well.

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[5] Task Force on Energy Policy, March 2002.

Although still in the early feasibility stage and it is unknown what level of electrical generation could be created at the cogeneration plant it is envisioned that the plant could consume upwards of 305,000 oven-dried tonnes of wood waste each year. The plant would create approximately 200 to 250 jobs during construction and 25 full-time jobs in trucking and plant operations once the plant was opened. The plan is to sell the power into the BC Hydro grid.

Location Analysis

- ***Project Proponent:*** First and foremost, there must be a proponent with the capital resources necessary to construct a plant, and a source of local use, in this case a mill with steam and electrical needs. The presence of major manufacturing facilities in Houston is one reason why past cogen studies have focused on this community.
- ***Feedstock:*** Approximately 1.6 million m^3 of wood waste is burned annually in regional tier 1 and 2 waste burners. Previous feasibility studies have shown that there is ample wood waste in the Bulkley-Nechako region to support a cogeneration facility.
- ***Establishing an Environmental Premium:*** Since burning wood waste cannot generate electricity at a rate lower than BC Hydro's average cost, the public utility was always reluctant to contract new facilities. But the avoidance of social accounting has always made cogen electricity appear more costly than it actually is. There are obvious health, environmental and social benefits to removing burners from the region and creating a more livable environment. BC Hydro's historical unwillingness to account for environmental premiums when purchasing electricity from cogeneration plants was the main stumbling block to their establishment. An environmental premium entails BC Hydro accepting some flow-through costs thereby paying a higher price for the waste wood fired plant's electricity. Unfortunately, proponents of waste wood fired cogeneration plants rarely quantified the economic rationale behind an environmental premium. To substantiate the worthiness of their projects, proponents of waste wood fired cogeneration plants have to document the economic benefits of an environmental premium.
- ***Grid Access***: Historically, the stumbling block for local cogeneration, and many other cogeneration proposals, was the need for BC Hydro to wheel and purchase excess electricity that is the power that mill operators do not use. Since a cogeneration plant's financial cost of producing the electricity is higher (on a kwh basis) than BC Hydro's least-cost alternative, this additional cost is viewed as an environmental premium because it eliminates most of the negative consequences associated with burning the waste wood and adds productive capacity to the economy. Now that BC Hydro and the province have established green energy targets, there are more clearly defined opportunities for being approved as a customer based generation project, or an independent power producer. One or other of these designations is required to attain grid access.

- ***Access to Nearby Use:*** It is impractical to transport heat over any distance, so a cogeneration facility must be located physically close to its heat user. The greater the potential uses within proximity to the facility, the more likely it is to be feasible. While this appears to favor higher density population areas, it can also be appropriate for single users if their process heat (e.g. steam) needs are great enough. Most cogeneration projects in the last 10 years in BC have been linked to wood processing facilities.

Market Analysis

As previously noted, the opportunities for wood waste cogeneration in BC are linked to recognition of the environmental value of power sources. In British Columbia, the province has been historically dependent on hydroelectricity generated by large hydroelectric dams built and operated by BC Hydro. Since these facilities could produce power more cheaply than wood waste cogeneration there has been no interest or desire to see cogeneration used until very recently.

The only successful wood waste cogeneration ventures in BC where those that took place in association with a primary or secondary wood processing company – typically a pulp mill complex. These producers used the majority of the power for their own internal needs. The only other noticeable cogeneration success and the only major project that was able to connect to the BC Hydro grid was the stand-alone cogeneration facility in Williams Lake. This project was able to receive a power rate and terms that reflected the environmental benefits associated with the project. This was a particularly urgent project given the poor air quality in Williams Lake at the time, therefore this project went ahead and BC Hydro paid a higher rate for the power, a rate it wasn't willing to pay similar opportunities in other parts of the province.

However, BC Hydro has recently embraced the concept of green energy. Currently there is no universally accepted definition of green energy. However, BC Hydro uses a detailed green criterion that includes:

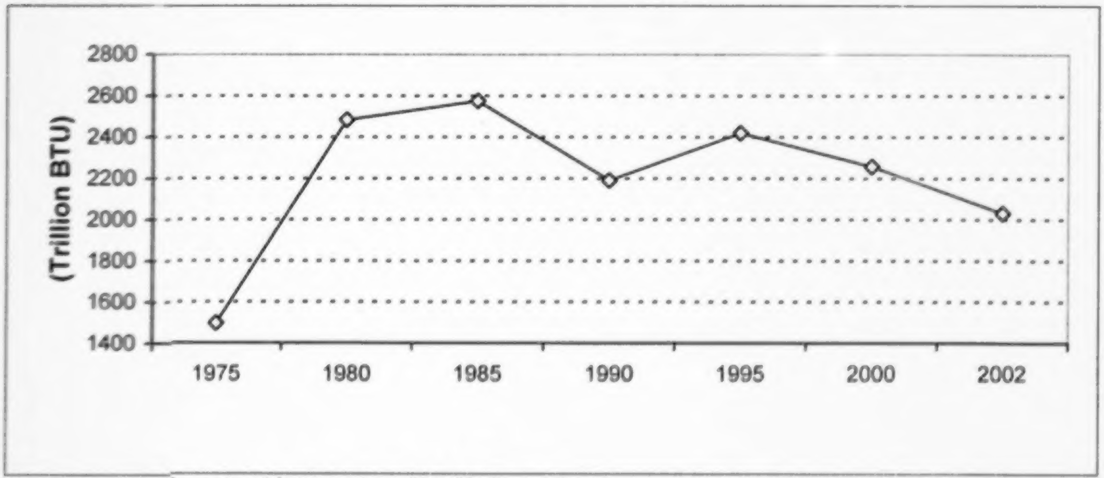
- **Renewable** – the energy must be replenished by natural processes within a reasonable length of time.
- **Licensable** – The project must meet all relevant regulations and standards.
- **Socially Responsible** – The project must be developed in a socially responsible manner.
- **Low Environmental Impact** – The project must avoid unacceptably high environment risks.

BC Hydro is working to enable the development of green energy here in BC. BC Hydro has set a target of ten percent of new demand through to 2010 to be met by new green sources. Under the green power initiative wood waste cogeneration will be able to receive upwards of 4.5 cents a kilowatt-hour for energy generated, this is almost double the traditional rate paid to power producers in BC.

Current Production Trends

For renewable electrical energy the market is North America with the focus in Canada on the potential that can be supplied to the United States. Figure 1 highlights the change in energy consumption using wood waste.

Figure 1: Wood Waste Energy Consumption in the US – 1975 to 2002



Source: Energy Information Administration – Monthly Energy Review.

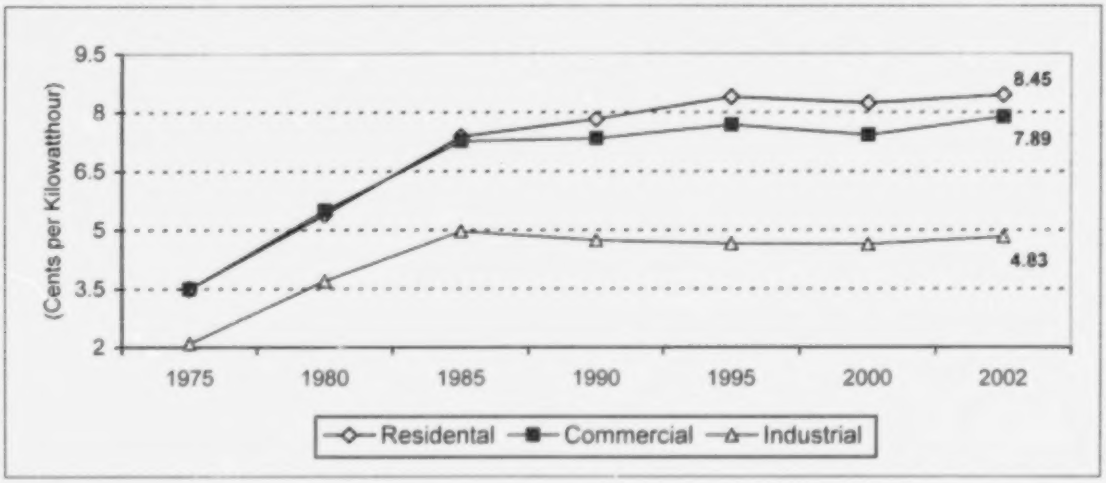
In the United States, renewable technologies are anticipated to grow slowly because of the relatively low costs of fossil-fired generation and because competitive electricity markets favour less capital-intensive natural gas technologies over coal and base load renewables in the competition for new capacity.

However, total renewable generation, including conventional hydroelectricity, wood waste, alcohol, geothermal, solar and wind is projected to go from 298 billion kilowatts in 2001 to 476 billion kilowatt-hours by 2020, an increase of 2.5 percent per year.

Market Demand and Price Trend

Figure 2 highlights the average retail price of electricity in the United States between 1975 and 2002. In general, the rates for all US customer types rose sharply between 1975 and 1985. In 2002, the industrial rate remained approximately 57 percent that of residential rates. In BC rates are significantly lower than those generally found in the United States. Adjusted into US dollars, the 2002 rates for BC Hydro rates for BC customers where 4.6 cents a kilowatt hour for residential, 4.0 cents for commercial, and 2.6 cents for industrial customers. BC Hydro rates have remained constant between 1999 and 2003.

Figure 2: Average Retail Prices for Electricity in the US – 1975 to 2002



Conclusion

In 1999, BC generated 90 percent of its electricity from hydro resources with the remainder split between wood, wood waste and natural gas. Due to the limited prospects for developing new large scale hydro projects, incremental growth in generation capacity is expected to be natural gas-fired, but developers are examining other options including run-of-the-river, small hydro plants (less than 10 MW) and wind. Including wind and wood waste projects, "green" options could account for 10 to 20 percent of BC's incremental generation over the next several years.

The potential development of cogeneration in the region is likely only a matter of time. There is an extensive amount of competition lined up for BC Hydro's customer based generation call for proposals process, but the pressing environmental issues and the impending burner phase out will have to be addressed eventually. The one possible development that may change the local economics of cogeneration is an alternative use or uses for wood waste, sawdust and chips.

Recommendations to the LRMP Table

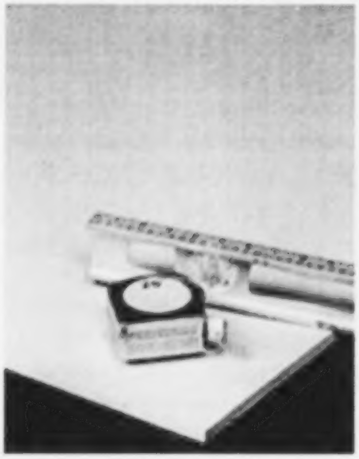
Recommendation – Timber harvest levels should not be decreased below that which would produce the 305,000 oven-dried tonnes of wood waste necessary to operate a cogeneration facility. Current levels of harvest are more than adequate to operate such a facility.

Recommendation – Access should be maintained to logged areas containing a high volume of wood waste, until such time as that volume can be extracted.

Establishment of a Medium Density Fibreboard Operation

Overview

Medium density fibreboard (MDF[6]) is a non-structural panel made of wood fibres bound together with adhesives under heat and pressure. Mill residues and chips are the common feed stocks in existing fibreboard plants. Wood is mechanically refined, and the panels are manufactured using a dry blowline process.



MDF has a substantially homogeneous consistency resulting from the uniform distribution of the wood fibres throughout the board. Different characteristics can be produced to meet end use requirements. Smooth and solid edges can be easily machined and finished, and the uniform surface provides an excellent substrate for painting or applying decorative overlays.

This advantage has secured MDF's solid position in the furniture market. It has been successfully used in shelves, flush doors, television cabinets, wrapped mouldings, cupboards, drawer fronts, table tops, pool tables, office furniture, plaques and shields, game boards, toys, picture frames, mirror surroundings, pedestals for tables, bedroom furniture and bathroom accessories. Thick MDF is penetrating markets for millwork applications such as doorframes, window frames, windowsills, stiles, casings and turnings, as a substitute for solid wood.

Opportunity Analysis

The MDF sector in North America is relatively new. The first plant was started in New York in 1966. In Canada, MDF production is even newer with the first mills built in the 1980s when two facilities were established in Alberta. However, most capacity has come on stream only since the mid 1990s. By 2001, there were 28 MDF mills in North America, 10 of which were in Canada. One of these is located in BC at Quesnel (West Fraser 1996).

Market Analysis

Historical Market Trends[7]

For North American MDF, production growth rates over the last 20 years have yielded an impressive average annual rate of 18 per cent. From the less than 0.4 million m3 in 1974 when there were only nine MDF mills, production capacity had climbed to over five million cubic metres annually by the late 1990's. As seen in Figure 3, the number of plants and production capacity grew in step until the mid 1990s when plant sizes began to increase.

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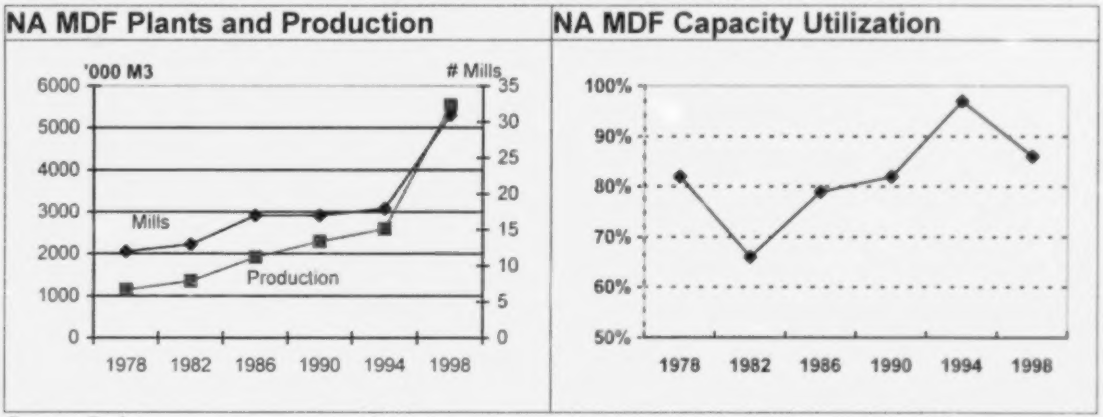
[6] Industry Canada (2003).

[7] RE Taylor and Associates (2002).

Figure 3 also shows that 1980s capacity utilization was well below sustainable levels. As product substitution and demand for MDF climbed product existing producers were able to meet demand - this explains why only three plants were constructed between 1982 and 1992. When capacity utilization peaked in 1995 at 99 per cent, there was another rush to build mills, with 14 coming on stream during the six-year period ending in 1998. Again, this created excess capacity and it has only been in the last two years that North American capacity utilization has climbed back to profitable levels.

In the 1980's and 90's, imported MDF supplied, on average, only three to five per cent of total North American domestic usage of MDF in any particular year.

Figure 3: North American MDF Capacity and Capacity Utilization – 1978 to 1998


NA MDF Plants and Production

NA MDF Capacity Utilization

Source: Spelter.

Current Trends

By 2003, the capacity glut that plagued the industry in the late 1990s had been worked off, resulting in improved operating rates and favourable prices. During that time, consumption almost doubled while shipments rose 60 per cent. Import and export activity remain a small part of total consumption (Table 8).

In recent years, imports have surged, with Canada's market share of US imports dropping despite large increases in its exports south of the border. New suppliers of MDF include Germany, Chile and New Zealand. Imports now comprise approximately one quarter of consumption, although increasing exports to offshore markets has offset this. Exports of Canadian MDF are almost totally to the US.

Table 8. North American MDF Activity Measures – 1997-2003, million square feet*

	1997	1998	1999	2000	2001	2002	2003
Shipments	1,718	1,889	2,217	2,223	2,401	2,577	2,732
Exports	260	315	420	430	498	524	540
Imports	198	311	563	600	748	655	672
Consumption	1,654	1,885	2,360	2,392	2,650	2,708	2,864

* 1 m3 converts to approximately 567 square feet (3/4").

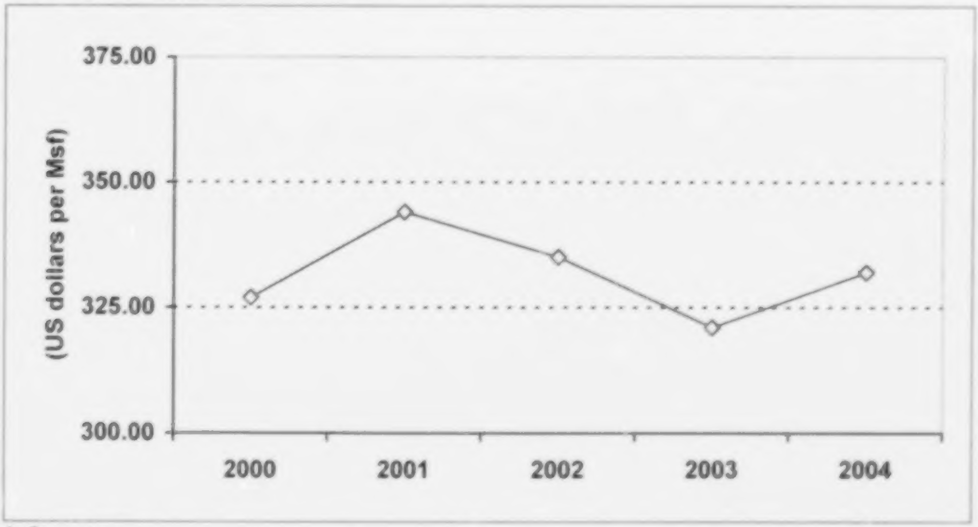
There are now 28 mills in North America. New investments in facilities are again expected - by 2006, total North American output of MDF is expected to reach 5.7 million m3 (Taylor and Associates, 2002).

Market Demand and Price Trend

As MDF came onto the non-structural panel market in the 1990s there was a significant amount of substitution for lumber and particleboard, mostly in furniture, cabinetry, millwork, flooring and mouldings. Although further substitution can be expected if prices remain competitive, the bulk of demand growth has already occurred.

End use demand is five per cent residential, six per cent repair and remodelling, 89 per cent industrial. Exports of Canadian MDF are expected to peak at about 0.7 million m3 by mid-decade and then decline slightly thereafter. Canadian industrial markets will pick up the slack, showing more consistent yearly growth and will surpass export demand in 2008.

Figure 4: MDF Prices, $US/Msf – 2000 to 2004*



* forecast

Source: RE Taylor and Associates, April 2002.

After years of excess capacity, which held prices down, 2001 was the first year that prices moved off the floor. They since dipped, however, but are expected to trend back up in 2004(Figure 4). Prices are buoyant considering the approximately $100 premium MDF enjoys over particleboard.

Future Market Trends

While growth in overall demand for MDF through to 2012 will average almost 10 per cent annually, the rapid growth in production experienced in the mid to late 1990s will not continue. Average annual rates are gradually declining, from more than 30 per cent between 1996 and 2000, to an expected 10 per cent from 2000 to 2005 and a projected two percent or less from 2005 to 2010.

Capacity growth is expected to move up toward production and demand levels and again having a positive impact on operating rates and prices. As Canadian plants again approach the 90 per cent utilization level and prices peak in 2004, some new projects might be expected. There is talk of MDF capacity additions in Alberta, but not BC. Canadian producers are aggressively targeting the US market and have had success, but currency exchange rates and competition from Asia and Europe will continue to compete heavily for market share.

Location Analysis

There is a natural tendency to assess the feasibility of MDF first from a fibre input perspective and secondarily from other aspects of the operating and management environment. However, it is clear based on the development of capacity in North America that MDF is primarily based on technology and market factors and not just raw material inputs. As a relatively new technology, MDF facilities are modern and rely on innovative processes and environmental technologies.

There is an extensive amount of research that goes into MDF because it is recognized that longer-term growth will depend on improving existing product characteristics and the development of new improvements.

Key location factors include:

- Canadian producers are at a competitive disadvantage versus the US industry with location advantages in its home market. With no export market development in Asia, a Northwest producer would have to bear a transportation cost disadvantage when targeting key eastern US markets.
- As with most other softwood sectors, cost performance is now absolutely critical to maintaining viability. MDF is still a commodity and only when it progresses into higher value markets where quality and product differentiation are important, will cost competitiveness ease. The Northwest region of the province is part coastal (the highest cost producer of lumber in the world) and part interior (among the lower cost producers in the world). Clearly, the interior TSAs (Lakes and Morice) rather than the

coastal TSAs (Bulkley, Kispiox and Kalum) have cost advantages that may be transferred to a byproduct user.

- Increased public awareness and environmental regulation are forcing the adoption of new technologies, and impose challenges on equipment designers and manufacturers. Major objectives are reliability and cost efficiency. Environmental concerns essentially scuttled a planned MDF facility in Prince George by Canfor in 1998.
- MDF manufacture does require a secured and diverse raw material base. Most plants are able to handle a variety of raw materials, typically including chips (80-90%) combined with sawdust/shavings (10-20%). The use of sawdust, formerly an undesirable by-product but now a primary source for the industry, is increasing. A species mix is also tolerated, but does impact the adhesive process. Even though the Northwest region is awash in chips and sawdust, this has not led to any new production processes that utilize these materials over the last 15 years. The experience of Northern Engineering Wood Products (NEWPRO), a composite panel manufacturer based in Smithers, is a case in point. The company requires sawdust as its main feedstock but has historically found it difficult to secure adequate long-term supply commitments. One explanation of this may be that NEWPRO does not use balsam sawdust. A significant portion of the Bulkley and Morice TSA's profile contains balsam
- Beehive burners continue to be operated across the region, burning sawdust, shavings and other wood waste, despite a planned phase-out by the then Ministry of Environment in 1996. This anomaly also helps explain why multiple attempts at establishing a cogeneration facility in the region have never been successful.
- As with most other industrial enterprises situation outside of the southwest region of the province, attracting and retaining skilled trades is a concern for MDF manufacture. There is a recognized shortage of available skills and finding good technicians, engineers and scientists is not an easy task.
- It is interesting to note that the most recent investments in structural and non-structural panel production in Western Canada have been made in Alberta and not BC. Moreover BC-based companies, including Ainsworth and Slocan, are building these facilities. These investment decisions are undoubtedly due to a number of factors, which are instructive about BC's competitive position. Among factors that are said to favor Alberta include lower cost raw materials, lower labor costs, less fractious labor environment, more favorable business climate and lower taxes.

Conclusion

The lack of MDF capacity in BC, despite this provinces wealth of raw material supplies, strongly suggests that investors are seeking site location factors that are not necessarily BC's, or the Northwest regions, strong suit. There are adequate chips, shavings and sawdust in the Morice, but existing needs of NEWPRO's particleboard plant in Smithers poses a dilemma, since that facility has historically had troubles meeting its feedstock needs. Although the overall business climate in BC has improved measurably in recent years, Alberta continues to attract more investor interest for these types of projects. A cheaper wood supply, lower cost and more flexible workforce and less stringent environmental controls are all factors. The failure of Canfor, despite years of effort, to establish an MDF plant in Prince George in 1998 was attributable mainly to environmental concerns. Similar plans in the Northwest could be expected to encounter similar obstacles.

Recommendations to the LRMP Table

Given the current business climate the development of a MDF plant is presently not seen as a viable opportunity in the Morice area. In order to make this opportunity viable once market conditions improve the following recommendations would have to be dealt with.

Recommendation – A secure primary wood supply is required to provide the necessary by products needed to operate an MDF operation. Securing this wood supply will include the maintenance of proper access to the supply.

Recommendation – Species and stands such as aspen and low site pine that are currently not utilized could provide some of the fibre requirements for MDF. The LRMP Table could recommend to government that incentives be explored to for forest companies utilize this fibre. Zoning could consider that this type of fibre may provide an economic benefit in the future and could be included in the timber harvesting landbase.

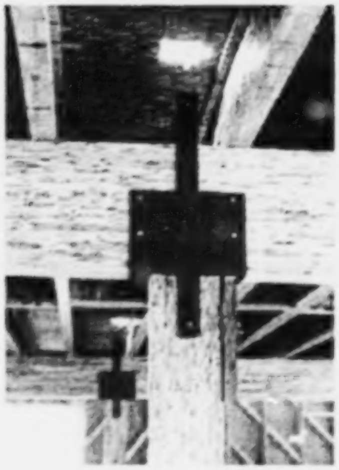
Recommendation – The LRMP Table could recommend to the provincial government that a streamlined environmental regulatory system be put in place to govern such facilities.

Recommendation - The LRMP Table could recommend to government that incentives be explored for wood products companies to convert wood waste into secondary products, thus aiding the move to reduce tier 1 burners.

Recommendation - Post secondary educational facilities and/or training programs should be available to local residents interested in working in the field of secondary manufacturing.

Engineered Wood Products

Overview



Engineered wood products (EWPs) are primarily used as substitutes for conventional softwood dimension lumber among structural markets. This would encompass products such as "engineered lumber" (laminated veneer lumber [LVL], structural wood I-Beams, glued laminated timber (glulam), machine stress rated [MSR] lumber, finger jointed lumber), and proprietary products such as parallel strand lumber (Parallam™) and oriented strand lumber (Timberstrand™).

Although not a not a new concept (plywood being one of the earliest product innovations), EWPs have only breached mainstream markets in the last 20 years. Originally designed to replace traditional wood products (panel products for planks, laminated beams for large sections), companies quickly realized they could use EWP in design systems that made better use of available resources while providing products better suited to market demand.

Three EWP products dominate worldwide production capacity - LVL, I–beams, and glulams. The production of, and markets for, EWPs are primarily a North American phenomenon. I-beams and LVL are primarily produced and consumed in North America, although Glulam demand in Asia and Europe exceeds North American demand. LVL is used mostly as flange material for I-beams (60%) with the remainder being used primarily in structural beam applications including garage door headers, purlins, supporting beams, and the like. I-beams are used primarily in floor joist and roof rafter applications in North American platform frame construction.

Opportunity Analysis

As of 2001, there were 48 EWP firms operating in the province, mostly small-scale producers of specialty products. According to the Canadian Forest Service, 36 per cent of all wood value-added firms in the Interior are in the EWP category. Almost half of EWP firms were in the low value area of finger-joint lumber. There are another approximately 15 firms, again mostly smaller to medium-size operations, making laminated products. In terms of large-scale operations, there is only one in the province, LP Engineered Wood

Products of Golden, the sole manufacturer of LVL. There are no large-scale manufacturers of either I-beams or glulam.

In a 1999 survey of northern[8] value-added producers, the Canadian Forest Service found that there had been almost 100 percent growth in the number of EWP manufacturers between 1991 and 1997 (Table 9). EWP products trailed only remanufacturing in terms of number of companies in production. However, based on a review of the latest BC value-added directory of companies, almost all of this production was finger joint and MSR lumber produced by primary mills along Highway 16 between Smithers and Prince George. It is clear that some primary manufacturers are moving up the value chain with a variety of EWP items but in most cases, these are small-scale operations managed as an accessory of the primary mill.[9] Average sales for these operations were low (around $335,000 annually), and capacity utilization was low, around 75 percent for EWP producers.[10]

Table 9: Number of Secondary Manufacturers in the North

Business Type	Number of Establishments 1991 Survey	Number of Establishments 1997 Survey
Remanufacturing	13	22
EWP	7	13
Millwork	4	4
Cabinets	2	2
Furniture	1	2
Other Wood Products	2	2
Pallets and Containers	0	1
Panel Products	0	3
Shakes and Shingles	0	4
Total	29	53
Source: Bill Wilson December 1999		

Competitive Analysis

Several studies in recent years have attempted to shed light on the past performance and future outlook of the BC value-added sector. The results have been mixed, although there is some agreement that some competitive advantages could be deployed and turn around the industry's competitiveness. Some general observations include the following:

- ***Growth rates*** - A recent study found that eastern Canada, Wisconsin, the US South, Finland, Sweden, Germany, Austria and Japan all have comparatively strong value-added wood products manufacturing sectors. BC was classified as having a low percentage of value-added processing in its wood products sector, with only a moderate rate of growth.[11]

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[8] Due to the small population of enterprises in the region, the Prince Rupert and Prince George regions are grouped together as the Northern Interior.

[9] Peter Woodbridge and Associates Ltd., 2000.

[10] Bill Wilson, 2001.

- ***Wood costs*** - There is a strong link between the cost competitiveness of EWP manufacturers and the primary producers on which they rely for their raw material inputs. When analyzed on a global scale, BC's wood costs appear in the middle of the pack. With wood costs accounting for the largest percentage of a firm's total costs, it is important to have a low cost source of supply. Table 10 compares wood costs from various competing producer regions, using the BC Interior as the benchmark. The Interior is competitive with the US, New Zealand and Chile, but not Alberta or Ontario.

Table 10: Wood Costs Benchmarked Against BC Interior (BC Interior = 100)

BC Interior	BC Coast	Alberta	Ontario	US Inland	US South	Chile	New Zealand
100	171	81	74	113	113	100	94

- ***Competitive ranking*** – In spite of its disadvantages compared to Alberta, a recent study did state that BC fared moderately well compared to neighbouring regions when it came to EWP processing (Table 11). One of the advantages from a local perspective is that EWP products are exempt from the punishing CVD/AD actions of the US.

Table 11: Interior Value-added Wood Association 2002 Competitiveness Rankings

Rank	Lumber Remanufacturing		Structural EWP	Structural Systems (Wood Trusses)		Housing Type		
						Manufactured	Factory Built	Log & Timber Frame
	Without Duty	With 27% Duty		Without Duty	With 27% Duty			
1	Idaho	Idaho	Oregon	Arizona	Arizona	Arizona	Colorado	**BC**
2	Alberta	Colorado	Wash	Colorado	Colorado	California	Arizona	Washington
3	Colorado	Alberta	**BC**	California	California* **BC*** Alberta*	Oregon	Alberta	Oregon* Montana*
4	**BC**	California	Idaho	**BC*** Alberta*		Colorado	**BC**	
5	Oregon	Oregon	Alberta			Idaho	California	California
6	California	Wash		Oregon	Oregon	Washington	Oregon	Colorado
7	Wash	**BC**		Idaho	Idaho	Alberta	Washington	Arizona
8				Wash	Wash	**BC**	Idaho	
9							Montana	

Source: Peter Woodbridge & Associates Ltd.
Note: * denotes a tie.

- ***US competition*** - BC and Interior firms face intense competition from the US EWP firms in the key US market. Table 12 shows the size of the EWP manufacturing sub-sector in the United States and highlights the concentration of total sales amongst the largest firms. The 32 EWP firms are large-scale, capital intensive industries averaging

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[11] Forum Consulting Group Ltd., 1999

$45 million annually in sales. As seen in Table 13, most of these operations are in the western US, primarily Oregon.

Table 12: US Share of Value of Shipments Accounted for By the Largest Firms in Specific Value-added Wood Sectors (1997)

NAICS	Industry	Companies	Value of Shipments	4 largest Companies	8 largest Companies	20 largest Companies
		(Number)	($ 1000 US)	Percentage of Value of Total Shipments		
321213	Engineered wood (excl. truss)	32	$1,431,123	77.1%	86.9%	96.6%

Source: US Census Bureau.

Table 13: Establishment Count and Value of Shipments of Value-added Wood Manufacturing Firms in Washington, Oregon, and California (1997)

NAICS	Industry	Washington		Oregon		California	
		Est. #	Shipments ($US 1000)	Est. #	Shipments ($US 1000)	Est. #	Shipments ($US 1000)
321213	Engineered wood (ex. truss)	3	$26,810	15	$619,581	2	---

Source: US Census Bureau.

Supply Analysis

The Northwest in general and the Morice region specifically, is well-positioned in terms of raw materials supply for EWP products. As previously stated, there are already numerous companies producing low-value finger-joint products, although there are as yet no large-scale EWP facilities.

The costs shown in Table 14 represent broad averages for the value-added manufacturers involved in Peter Woodbridge's competitiveness 2001 survey of firms throughout the US West. Wood and labour are the largest cost factors for the EWP sub-sector.

Table 14: Factor Cost Significance – Percentage of Manufacturing Costs (Prior to 27% Tariff)

Cost Components	Lumber Reman	Structural EWP	Structural Systems (Trusses)	Manufactured Homes	Factory Built Homes	Log Homes & T Frame
Wood Costs	63	65	37	20	57	22
Other Materials		4	9	40		5
Direct Labour	19	18	16	15	14	40
Other Production Costs		8	6		15	14
G & A & Other Unallocated	10		22	13		
Operating Profit	8	5	10	12	14	19
Net Sales Value (FOB)	**100**	**100**	**100**	**100**	**100**	**100**

Source: Peter Woodbridge & Associates Ltd., 2001.

As seen in Table 15, SPF, pine and spruce species are favoured by EWP producers in BC, each of which is available locally and regionally. Input requirements are usually in the form of lumber, also a plentiful commodity in the region.

Table 15: Top Species Utilization by Business Type in the BC Value-added Sector

Business Type	Cedar	Douglas Fir	Spruce	Lodge Pine	Hemlock	SPF	Hardwood
Engineered Wood	4%	9%	16%	25%	7%	37%	2%

Source: Canadian Forest Service. Only dominant use species are listed so total may not add to 100.

The forest stands within the region contain mostly coniferous trees with some deciduous stands at lower elevations. There are more than six million cubic metres of annual allowable cut in the Lakes, Bulkley and Morice TSAs, with significant recent additions to the harvest for mountain pine beetle programs. Species mix is primarily lodgepole pine, spruce and balsam. The further north one goes in the region, the more coastal conditions and balsam predominate. Balsam is not a favoured species for EWP. One species that does favour the production of strength-related EWPs like LVL is Douglas fir, which is not harvested in the Bulkley-Nechako basin.

Most (in the neighbourhood of 80 to 90 percent) of the harvest in the region is processed locally, and could be made available for EWP inputs. Processing facilitates in the TSA include seven large (one idle) and two small sawmills plus a remanufacturing plant.

The Ministry of Forests estimates that there is sufficient regional mill capacity to process a large increase in volume associated with the uplift for the beetle-wood in the Lakes. Local interest has been expressed in processing an additional 330,000 of beetle-killed timber by area value-added manufacturing, dimensional lumber and house-building logs, and area First Nations.

Location Analysis

Many of the key location factors have been touched upon in the previous discussion and are reviewed below:

- ***Raw material supply*** – Although the region has ample volumes of timber and lumber, and significant quantities of wood waste, the sourcing of raw materials by prospective EWP producers would be difficult. The region has yet to developed significant value-added production of any size, despite the apparent availability of wood. There are likely several explanations for this, including a lack of very high value species like Douglas fir, and the historic lack of integration and synergy between primary and secondary/value-added producers in the region.
- ***Wood costs*** – Wood costs in the region are competitive with some jurisdictions, but not Alberta, where many BC-based companies have established EWP plants in recent years. Delivered wood costs in the Interior make it a medium-cost producer in a world context.

- ***Scale*** - Structural EWP production tends to be undertaken by large-scale, global players providing low unit cost, high volume products for export. Facilities are capital intensive, requiring significant technology inputs and skilled personnel. The business model is much more difficult to establish than smaller custom manufacturing enterprises (e.g. log homes, cabinets) and medium-sized batch processing (e.g. reman, RTA furniture).
- ***Industry investment climate*** – This is a deterrent to new investment attraction for EWP production particularly in areas like the Northwest where the wood supply is dominated by primary producers. At one time, BC forest companies held leadership positions in many product areas and developed strong technology development capabilities. Ironically, several engineered wood products were developed in BC and gave the industry a strong competitive footing. Trus-Joist MacMillan controlled 40% of the US market for LVL and I-beams before it was bought out by Weyerhaeuser, yet none of its facilities were based in BC. Once prominent capabilities have all but evaporated over the last 10 years as the industry lost its competitive advantages.
- ***Skilled labour*** – Skilled labour availability and flexibility are a development constraint. The labour force in the Northwest is highly unionized and highly paid, whereas many value-added facilities in the province have below union wage scales and more flexible work arrangements. On a positive note, unions such as IWA-Canada have now begun to negotiate collective agreements for value-added firms separate from primary producer agreements.
- ***Cluster Activity*** - There is no cluster of value-added activity in the Northwest and there are few public sector incentives aimed at generating these. Moreover, there is only moderate interest among primary producers for seeking linkages with prospective EWP producers. BC as a whole has a poor track record of integration and lags other jurisdictions such as Alberta, Quebec and Oregon where synergies are actively pursued. Successful manufacturing firms tend to have a customer-centred focus or at least a strong market focus. There is reasonably good research and institutional support for EWPs in BC, but these are concentrated in the Lower Mainland.

Market Analysis

There are several forces driving demand for EWPs in North America:[12]

- The dominance of wood frame construction and the changing nature of the softwood fibre supply. North American production has grown rapidly during the 1990s and currently constitutes five percent of North American softwood dimension/structural lumber (sawnwood) consumption. The level of housing starts and the fact that 90 percent of the homes built in North America are wood frame, dominate engineered wood product use in North America. European housing, by contrast, is only 10 percent wood based and 90 percent steel/concrete. In Japan, housing is about 50 percent wood-based and 50 percent steel or steel and concrete. Conversely, the performance properties and good value of EWPs make wood-frame housing attractive.

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[12] Industry Canada, 2003.

- The North American population is aging. Builders are now being forced, because of skilled labour shortages, to switch to labour saving materials and construction techniques, many of which involve EWPs. The wood products industry's strong desire to maintain its key market – residential construction – has stimulated investment in EWP facilities. EWPs will also have a good chance at penetrating non-residential construction markets which are currently using primarily steel and concrete.
- The volume of quality softwood lumber is declining. As "old growth management" increases in the US and harvests turn to 2nd and 3rd growth the sawnwood produced from the smaller diameter trees has more juvenile wood, more knots, diminished strength properties and reduced in-service performance. These factors have helped direct vast volumes of underutilized, fast growing, relatively inexpensive fibre into the EWP industry.
- EWP prices have remained relatively stable over time, a factor favoured by large builders who pre-sell many of their homes.
- Home and house construction utilizing EWPs can extract labour cost savings versus conventional lumber. Fewer pieces of uniform size means less labour is needed for projects. Hence, EWPs are often a better value.

Production

Figure 5 shows that, while EWPs have a very small fraction of major use markets, its share growth is rapid as it gains more acceptance among key construction markets.

A recent US study by the Center for International Trade in Forest Products identified trends in material substitution for softwood lumber in US home construction.[13] Between 1994 and 1998, an increasing number of builders were experimenting with substitute materials such as engineered wood products. In flooring, I joists and LVL were taking significant share from softwood lumber, with little threat from steel. In fact, during the study period, the only material that saw significant reduction in material use was softwood lumber. Key product attributes that were influencing substitution were strength, straightness, availability, lack of defects, and price stability. Importantly, most alternative materials were considered to be more environmentally friendly than wood.

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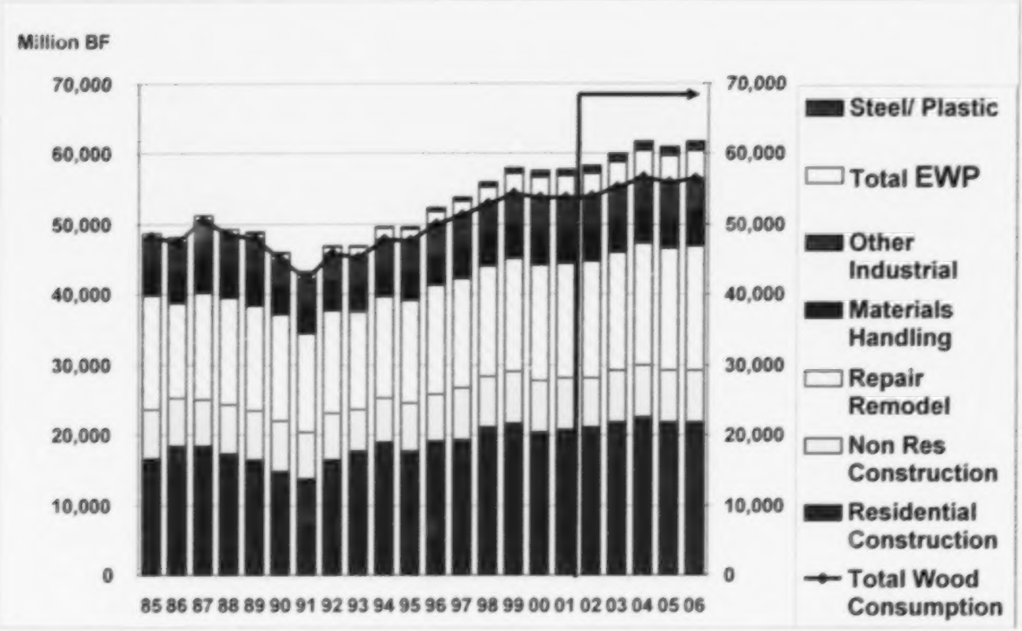
[13] Shook, 2002.

Figure 5: US Consumption of Lumber and Direct Substitutes



Source: RE Taylor and Associates

Production, consumption and trade statistics balance each other out as international trade in LVL and I-beams is minimal. The only measurable trade flows are between the United States and Canada. In 1999, approximately two million m3 of I-beams were produced worldwide with 95 percent produced and consumed in North America. I-joists now make up 40 percent of above ground, raised wood floors (excludes ground level concrete floor area) in the United States single family housing market and are expected to grow to as much as 80 percent market share in ten years. The other major end use is for roof trusses, although market penetration to date has been lagging the success in the flooring market. In North America 95 percent of the LVL is from softwood species such as southern yellow pine and Douglas fir because of their good strength to weight ratios.

Market Outlook[14]

The outlook for EWPs is excellent with much of the impetus coming from the global need for efficient construction techniques, growing environmental concerns, and the universal requirement for affordable shelter. EWPs will continue to evolve and capture market share from maturing conventional building materials.

Rapid technological developments in various production technologies, the trend toward performance-based codes in lieu of the older "product-based" codes, and the continuing decline of quality old-growth softwood lumber will also drive demand.

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[14] FAO, 2001.

EWPs are the product of the future as far as wood-based building materials are concerned. This is true whether referring to North America, Europe or Japan. Continuing evolution of all types of EWPs is expected.

Conclusion

Engineered wood products are a very active sector of the Canadian wood products industry and will continue to expand at a brisk pace. Economic success requires continuous adaptation to market requirements through innovative design and aggressive marketing, as well as technological innovation to reduce production costs while expanding raw material options and product specifications. This will require dynamic market intelligence as well as technology for improved process and quality control.

The potential development of EWPs in the Northwest will be hampered by difficulties in accessing raw materials, skill shortages (technical, economic, marketing) and an overall poor investment climate.

Engineered wood products are the future of wood building materials because they offer the best hope for incorporating technological change to ensure that forest products are cost competitive on an installed cost basis with all alternative building materials. The development of capacity in the Northwest will take a significant effort on behalf of government, labour and business.

Recommendations to the LRMP Table

The requirements necessary to operate an EWP operation are similar to those of the Medium Density Fibre Board Operation. Notwithstanding the market limitations the LRMP can better the likelihood of EWP operations by considering the following recommendations:

Recommendation – A secure primary wood supply is required to provide the necessary by products needed to operate an EWP operation. Securing this wood supply will include the maintenance of proper access to the supply.

Recommendation – Species and stands such as aspen and low site pine that are currently not utilized could provide some of the fibre requirements for EWP. The LRMP Table could recommend to government that incentives be explored to for forest companies utilize this fibre. Zonation could consider that this type of fibre may provide an economic benefit in the future and could be included in the timber harvesting landbase.

Recommendation – The LRMP Table could recommend to the provincial government that a streamlined environmental regulatory system be put in place to govern such facilities.

Recommendation - The LRMP Table could recommend to government that incentives be explored for forest companies to convert wood waste into secondary products, thus aiding the move to reduce tier 1 burners.

Recommendation - Post secondary educational facilities should be available to local residents interested in working in the field of secondary manufacturing.

Minerals, Oil, Gas and Energy

Introduction

Mineral exploration and development of the Morice LRMP area has continued for over a century. A wide range of metallic minerals: gold, silver, copper, lead, zinc and molybdenum, has been produced at five mine sites over this time. There are 17 major deposits containing high levels of mineral reserves. The success of mining exploration is partly a function of ease of access to unprotected land within the Morice LRMP and certainty that economically viable deposits can be exploited.

Due to growing energy demands oil and gas exploration and development has become more profitable. Confined primarily to the Peace Region of B.C. interest in oil and gas in other parts of the province has increased. With the recent finding that the Bowser Basin resources may be richer in content and larger in size than once thought the Morice LRMP could stand to benefit from such developments.

For a detailed assessment of the current state of this sector refer to the Morice Land and Resource Management Plan: Socio-Economic Base Case

Sector Development Strategy

The Ministry of Sustainable Resource Management has developed a Mineral, Oil and Gas Sector Strategy for Crown Land Access. This strategy complements the Ministry of Sustainable Resource Management (MSRM) and Division service plans, the Strategic Direction for Economic Development, the First Nations Strategy and the Agriculture Sector Strategy. A few key action items listed in the strategy's 2003/04 – 2004/05 workplan include:

- Increase First Nations participation in minerals, oil and gas economic opportunities, by working with TNO, FN, OGC, local governments, industry, and others to identify or facilitate opportunities for development of subsurface projects, or opportunities to develop partnerships with the private sector project proponents, and to facilitate access to programs such as the Economic Measures Fund.

- Encourage increased investment in subsurface resource exploration and development by developing and implementing policy initiatives that enhance investor certainty and access to Crown land and resources.
- Maximize the land and resource base available for discovery of oil and gas pools and mineral deposits.
- Ensure consistent application of the two-zone land use system for mineral exploration and mining in planning and in all policy and legislative initiatives.
- Facilitate identification of resource development opportunities through planning.
- Support MEM in eliminating critical barriers or impediments to investment, particularly any relating to access to Crown land and resources or to infrastructure issues.

For more information on the Province's Minerals, Oil and Gas Strategy interested individuals can access a copy of the report online at http://srmwww.gov.bc.ca/rmd/ecdev/mog/index.htm .

Based on information gathered from the SWOT analysis an economic development strategy was developed for the Minerals, Oil, Gas and Energy Sector specifically for the Morice. The strategy is to develop productive and profitable, world-class mine sites in the Morice that respect social and environmental needs. Ensuring land-use certainty and collaboration with other land and resource users is a key consideration. The strategy is also intended to assist the Province of British Columbia in its effort to open up rich oil and gas reserves for meeting North American energy demands.

Undertaking the following actions will assist in realizing this strategy.

- Improve development certainty eliminating land use conflicts (includes the identification of protected areas).
- Maintain reasonable access to identified mineral and oil deposits.
- Maintain access for mineral and hydrocarbon exploration for the development of currently unidentified deposits.
- LRMP directions should support th the mineral , oil and gas, and energy sector through results-based objectives and strategies that should be clrealy and consistently applied..
- Provide for a suitable energy supply to meet the industries need (includes the development of a cogeneration facility).

While there are many more factors that control the development of specific mineral or oil deposits, such as global market demand, these actions if taken will positively benefit the industry and will position the Morice area in a much better state to develop a world class mineral oil and gas and energy sector

A Two-Zone System for Mineral Exploration and Mining in BC

Information on the Two-Zone System is presented in this report to provide context to the extent at which land and resource planning is involved in the mineral, oil and gas sector.

The following excerpt is taken form the Ministry of Sustainable Resource Management website at http://srmwww.gov.bc.ca/rmd/ecdev/mog/twozone/index.htm . Individuals interested in finding out more on the Two-Zone System can get this information for the aforementioned website.

"The Province recognizes that stimulating investment in mineral exploration and mining is fundamental to a strong, competitive and vibrant provincial economy. A key factor in attracting investment is certainty regarding access to land for development of provincial mineral resources. To enhance this certainty and to assist in changing negative perceptions about mineral investment in BC, a "two-zone system" for mineral exploration and mining has been clearly established for the province. This two-zone system identifies lands that are closed to mineral development and those that are open to mineral exploration and mining, subject to applicable legislation.

The two-zone system recognizes the challenges faced in exploring for a hidden resource. While the two-zone approach is not a new concept, it has now been confirmed in legislation through an amendment to the Mineral Tenure Act. As it is expected that a wide range of audiences will be interested in understanding the implications of the two-zone system, particularly as applied to land use planning or to permitting for mineral activities, an information brochure has been created jointly by the Ministry of Energy and Mines and the Ministry of Sustainable Resource Management" (MSRM 2003)

It should be noted that while the following technical analyses do not specifically refer to the Two-Zone System, any and all opportunities being considered are governed by this system. All LRMP Table Sector Representatives are to be aware of this fact when involved in decision making deliberations.

Identified Opportunities

The Economic Development Working Group, through the brainstorming sessions, identified the following list of opportunities for the Mineral, Oil, Gas and Energy Sector. Table 16 is the listing of opportunities and their relative rankings within that sector.

Table 16. Identified Mineral, Oil and Gas, and Energy Opportunities and rankings

Opportunities	Ranking
Medium to large scale open pit mines	29
Small to medium underground operations	29
Gem stone production (opals)	21
Rework of tailings from existing mines	27
Coal bed methane production	26
Large scale gravel pit/aggregation production	24
Development of copper smelter	33
Limestone quarry development	20
Wind farming	26
Inline hydro facility	24
Creation of small hydroelectric dams	23
Oil and gas exploration and development	33

Using the ranking criteria to identify top priority opportunities, five were selected for further analysis. Those opportunities were; Exploration and development of medium to large scale open pit mines, exploration and development of small to medium underground mining operations, rework tailings from existing mines, development of a copper smelter and opportunities associated with oil and gas exploration and extraction. After further review of the priorities it was felt that the re-working of mine tailings did not require any consideration by the LRMP table. While it was recognized that technological advancements have made such an opportunity worthwhile to pursue there were no recommendations or management direction required to start this opportunity. This opportunity therefore was not analyzed. The following sections explore the criteria and conditions for developing these opportunities.

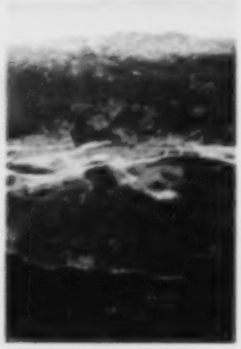
For further information on these and other economic development opportunities interested individuals are asked to review the Ministry of Sustainable Resource Management, Building Blocks. Information on these Building Blocks can be obtained online at http://srmwww.gov.bc.ca/rmd/ecdev/analysis/building_blocks.htm .

Development of Open Pit Mines

Overview

Open pit mining is a term applied to a surface mining method in which overburden is removed to expose ore. Material is removed from the deposit within economic limits. The concept of open pit mining is simple, but planning for development is complex and costly. It may be necessary to blend different ore types to maintain character and grade of the mill feed. It may also be necessary to ship different ore types separately - oxide must be treated separately from sulphide ores, and low-grade ores may go to leach dumps, or gold-bearing oxide capping to special leach pads.

Grade and tonnage of material available will determine pit limits and how much waste rock can be stripped. The ultimate limit to the pit is determined by the economics of removing overburden (i.e., waste rock on top of viable ore). Deposits generally decline in grade outward, so cut-off and pit limits may vary greatly with economic parameters. Slight variations in cost/value may have a great influence upon ore reserves.



Huckleberry Mine

In Northwestern British Columbia there have been numerous sizable producing open pit mines as the region is very rich in metallic mineral lands. In the Morice Plan area there is currently one active open pit mine – the Huckleberry Mine. The Huckleberry Mine began operation in late 1997 and is estimated to have four to five years of active mine life left. Huckleberry mine directly employees 215 workers and has a payroll of approximately $18 million annually.

Notable, local past producers include: the Granisle Mine, Bell Copper Mine, and Equity Silver Mine. The Granisle open pit mine was a copper-gold-silver producer and operated from 1966 to 1982. The mine still has remaining economic mineral reserves that were not extracted when the mine closed. The Bell Copper open pit mine operated from 1972 until June of 1992 when it too closed in response to low copper prices. Also, like Granisle, there remain potential reserves that could be mined if copper prices were to strengthen. Finally, Equity Silver mine operated as an open pit silver-gold-copper producer from 1981 to 1992 and then converted to an underground mine until its closure in January 1994.

Opportunity Analysis

Almost two-thirds of the Morice Plan area (970,000 hectares) is considered to be of extreme or high metallic mineral potential. Of this, 70,588 hectares covered by mining claims represent five percent of the total Morice Plan area.

Perhaps the most promising mine development in the Morice Plan area is the Morrison deposit, a copper-gold porphyry deposit within 20 kilometres of two former open pit producers – Bell Copper Mine and Granisle Mine. Noranda and Pacific Booker Minerals Inc own the Morrison deposit equally. Booker also has a 100 percent interest in the Hearne Hill porphyry deposit which is adjacent to Morrison and has a high-grade core and combined with Morrison could ensure a profitable mine life.

Another strong possibility for the development of an open pit mine is the existing Bell Mine site. This mine site still has large proven reserves; however, there is significant overburden that would need to be removed. If a viable model can be determine for this site than it is likely the remaining sizable deposit would be mined.

The Berg property is also a large copper and molybdenum deposit that holds development potential and would be mined as an open pit operation. Finally the Poplar mineral property is another site with known sizable tonnage. This would also be a copper and molybdenum open pit operation, if it were ever determined to be viable.

Location Analysis

Size of various types of deposits and land requirements for mining and concentrating facilities, tailings ponds and dumps range from 0.5 square kilometres to over 8 square kilometres. Land requirements are dependent upon whether mining operations are underground or open-pit, lateral extent of the ore body, percentage of gangue within the ore that must be discarded as waste, and the topography. At Highland Valley Copper, the largest active open pit metal mine in BC, approximately 6,300 hectares of land have been disturbed. These disturbances can be categorized into five general categories for open mining including:

- The open pit;
- Waste rock dumps;
- Tailings ponds and dams;

- Roads and pipelines; and,
- Buildings and other structures.

Besides the physical land surface over the mineral deposit, there would be several specific infrastructure requirements including:

- **Access to hydroelectricity** – Highland Valley Copper is the largest customer of BC Hydro, and electricity represents one of their larger expenses. In 1998 Highland Valley consumed 953,360 Megawatts of electrical power. New heavy transmission lines will need to be developed to the mine site.
- **Transportation Infrastructure** – New mines are often located away from existing transportation infrastructure. Typically at a minimum, this involves building new road infrastructure. In the case of the coal mines at Tumbler Ridge, it required the development of a BC Rail spur line some distance from existing track.

As well, the medium to large open pit mine would need to ensure it had:

- **Skilled Labour Force** – An open pit mine could create upwards of 1,000 direct jobs, many of which would be skilled trades people. At Highland Valley Copper, heavy-duty mechanics and electricians alone make up over 16 percent of the total mine workforce. The mine also employs a range of other professionals including engineers, environmental scientists, chemists, accountants, human resources and marketing. The labour force in the Morice Plan area is small and would require considerable effort on the part of the operator to attract and train the appropriate labour force.
- **Key Service Providers** – Open pit mining requires numerous types of heavy machinery to move waste rock and ore and undertake the ore processing. This equipment needs on-going and timely service and maintenance support. In 2001, Highland Valley Copper spent over $62 million on goods and services on companies from the City of Kamloops. Kamloops service companies like Finning Ltd. and Moly-Cop Canada depend on providing on-going service to Highland Valley Copper, and Highland Valley Copper in turn is dependent on the quick and quality service these businesses provide to them.

Environmental Issues

Key environmental concerns associated with open pit mining include acid mine drainage, heavy metal contamination and leaching, processing chemicals pollution, and erosion and sedimentation. Unfortunately for the Morice Plan area, the Equity Silver Mine is a case study of the environmental problems that can be caused by acid mine drainage. The Equity Silver Mine is at the top of two watersheds where streams flow into lakes on either drainage and from there into the Bulkley River. The acid-drainage from the Equity Silver Mine flowed into Buck Creek in 1982 until a partial containment system was constructed.

However, water quality remains a concern to this day with Placer Dome, Equity Mine's owners, spending $1.5 million on collection and treatment in 1997 alone. Equity was the first mining operation in Canada to be required to post a bond for maintenance of an acid mine drainage problem in perpetuity. The bond now stands at $25 million to guarantee payment of cost for this site and it is anticipated the problem will need to be monitored long into the future.

Acid mine drainage tends to be the most serious environmental problem among the various mining impacts. The first and best line of defence against acid mine drainage is to prevent the potential acid generating material from mixing with air and water. Containing the waste material and runoff (with liners, impervious pads, diversion and collection ditches, etc.) can be used to keep the pollutants from running off the mine site into groundwater or streams. The most reliable strategy for preventing acid mine drainage is to submerge the waste rock under water behind an impoundment to prevent exposure to oxygen. Currently the BC government, industry and conservation groups are working on potential technical guidelines for acid mine drainage.

However, the best preventative measure to mitigate specific potential impacts is to carefully plan and implement processes that will build in effect management regimes for identified problems at the beginning of the mine life.

Market Analysis

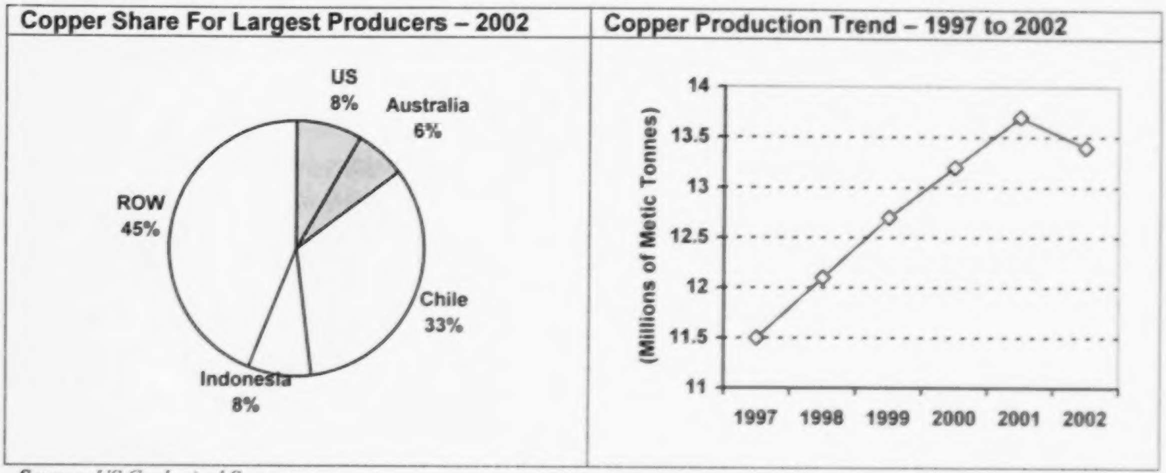
Current Production Trends

The known mineral resources in the Morice LRMP area consist primarily of five key metals: copper, zinc, gold, silver, and molybdenum. The following highlights the current world production for key mineral commodities (i.e., copper, zinc and molybdenum) that would most likely be mined in the region by open pit methods.

Copper – The strong growth trend in world mine production that began in 1995 came to an abrupt end in 2002 when producers, primarily in the United States and Chile, instituted cutbacks. The reduced output occurred despite growth of more than 400,000 tonnes annually in world mine capacity. In Canada, production was 633,000 tonnes in 2002, making Canada the seventh largest copper producing country in the world. In recent years copper production reached a peak of 710,000 tonnes in 1998 and has since been trending downward.

Figure 6 outlines the production percentage share for the four largest producers in 2002 and highlights the trend for copper production between 1997 and 2002.

Figure 6. World Share of Copper Production and Production Trend

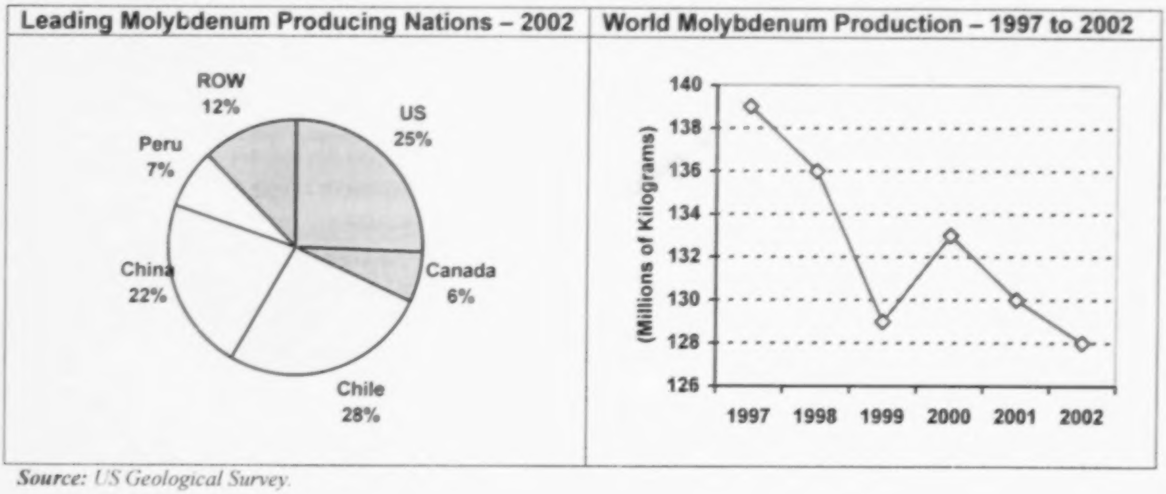

Copper Share For Largest Producers – 2002

Copper Production Trend – 1997 to 2002

Source: *US Geological Survey.*

Molybdenum – Molybdenum is a refractory metallic element used principally as an alloying agent in steel, cast iron, and super alloys to enhance hardness, strength, toughness, and wear and corrosion resistance. Distribution of molybdenum reserves and production capacity is concentrated in a few countries. The United States, Chile, China, Peru, Mexico and Canada represent 92 percent of the world's production. Molybdenum production has been declining in recent years, reaching its lowest production level in 2002 over the past five-year period. Figure 6 outlines the leading molybdenum producing nations and the general trend in recent production.

Figure 7. Molybdenum Producing Countries and World Mine Production

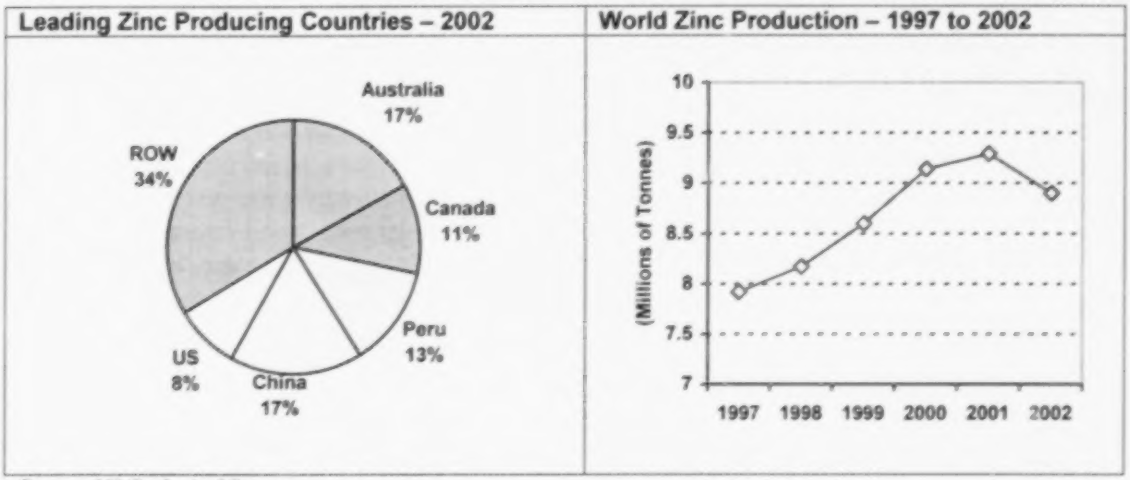

Leading Molybdenum Producing Nations – 2002

World Molybdenum Production – 1997 to 2002

Source: *US Geological Survey.*

Zinc – Canada is one of the larger zinc producing nations. Over the past five years the production of zinc has steadily climbed before falling in 2002. In 2002, zinc reached its lowest price levels in 15 years. The reaction to the steady decline in prices has been resulted in the closure of several smaller companies and small underground zinc mines, still others have curtailed production recently. As well, several mining companies have deferred plans to bring on new zinc production. Figure 8 outlines the leading zinc producing nations and the general trend in zinc production in recent years.

Figure 8. Leading Zinc Producing Countries and World Mine Production


Leading Zinc Producing Countries – 2002

World Zinc Production – 1997 to 2002

Source: US Geological Survey.

Market Demand and Price Trend

Overall metal prices are coming off a period of historical weakness and are anticipated to see an increase in price levels over the next couple of years. Table 17 outlines the change in key commodities that are mined or are of interest to the Morice LRMP plan area.

Table 17. Mineral Prices for Key Mineral Commodities (1995 to 2004)

	Copper	Zinc	Molybdenum
	(US cents/lb)	*(US cents/lb)*	*(US$/lb)*
1995	133.0	46.8	7.42
1996	104.0	46.5	3.61
1997	103.2	59.6	4.18
1998	75.0	46.5	3.31
1999	71.3	48.8	2.65
2000	82.3	51.2	2.51
2001	71.7	40.2	
2002	70.6	35.2	
2003 F	76.3	36.3	
2004 F	81.0	37.7	

Source: TD Bank Financial Group Commodities Price Report & BC Ministry of Energy and Mines.
F= forecast

Over the longer term, indexes developed by the US Geological Survey suggest that the long-term constant dollar prices of key metal minerals have declined, even though the need for minerals has increased.[15] For example in 1900 a pound of copper was approximately $3 ($1997) constant dollars and only about 76 cents ($1997) in 2003. Technologies and reduced production costs have allowed mineral production to remain profitable, while, lower priced mineral products from domestic and foreign sources helped fuel growth in other sectors of the economy. Moving forward, it is possible this general long-term downward trend will be broken as Asia becomes more involved in the world economy and continues to increase per capita consumption of metals.

Recommendations to the LRMP Table

Recommendation – The LRMP should consider zoning the areas around the Morrison deposit, Bell Mine site, the Berg property and the Poplar mineral property as industrial use.

Recommendation - Consideration should be made for the visual impacts these open pit mines have on other land uses (i.e. tourism operators). To avoid land-use conflicts avoid zoning non-industrial resource users near these sites.

Recommendation - Access to these sites should be identified so as not to cause potential land use conflicts with non-industrial uses later.

Recommendation - Access to these sites for utilities should also be considered during land use designations.

Recommendation - Consideration should be made to account for the establishment of training facilities to provide potential mine developers with a local, skilled workforce.

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[15] Constant dollars are dollars in which the effects of changes in the purchasing power of the dollar over time have been removed (adjusted for inflation). Constant dollars, therefore, have comparable purchasing power in different time periods and are on equivalent terms.

Development of Small to Medium Underground Mining Operations

Overview

Eskay Cr. Mine in Northwest, BC

Underground mines call for selective mine plans. The ore body may be in a narrow vein or a large irregular shape and can extend to great depths into the earth. Tunnels must therefore be extended to access the mineral deposit. Depending on the nature and shape for the deposit, three common methods of underground mining are typically considered, including self-supported methods, supported methods, and caving methods.

SELF-SUPPORTED METHODS: Small ore bodies are often completely mined out, without developing any pillar support infrastructure. In situations with stable rock (generally limestone), it may be possible to mine out huge open stopes, which remain stable and stand open for years. Sometimes, after open stopping of a mine, any pillars remaining are removed prior to abandoning that portion of the mine, allowing it to collapse. Often, narrow veins can be open-stoped, placing an occasional wood beam between the two walls for minor support of the walls and/or to support a platform on which workers can stand.

SUPPORTED METHODS consists of several different techniques including:

- Room and Pillar Mining, which is used in flat or gently dipping bedded ores or mantos. Supporting pillars are left in place, generally in a regular pattern, while the rooms are mined out. Room and pillar methods are well adapted to mechanization, and are used in deposits such as coal, potash, phosphate, salt, oil shale, bedded uranium, and base-metal deposits.
- Square-set Stoping is slow and expensive and requires skilled workers. It is generally used only for the extraction of high-grade ore bodies where rock walls are not strong enough to support an opening.
- Shrinkage Stoping is usually employed in the extraction of steeply dipping veins where the walls are sufficiently strong to support themselves during the mining. It is done by stoping the vein or ore body from beneath, allowing broken ore to support the stope walls, but leaving a space above the broken ore sufficient for the miners to stand and drill overhead for the next break.
- Cut and Fill Stoping is used in vein structures where the vein is moderately dipping, and/or where one or both walls lack the strength to stand up during mining of the ore block.

CAVING METHODS – Underground caving methods are characterized by high productivity, relatively low cost, as well as a high percentage of extraction of ore bodies with various shapes. The method lends itself to a high degree of mechanization and a continuous flow of ore from the extraction areas. Caving methods are dependent upon the shape of the ore body, and the strength of the ore and enclosing rock and include:

- Longwall Mining is used primarily in the extraction of coal, but may be used in extraction of flat-lying oil shale, salt, phosphate, or sedimentary metalliferous beds. It might be considered as a modification of room and pillar mining, but offers better opportunity for mechanization. Extraction is from long panels, with widths up to 1,000 feet where roof conditions are favourable.
- Sublevel Caving is a mass mining method based upon gravity flow of blasted ore and caved waste rock. Its major advantage is safety, since all mining activities are conducted from relatively stable openings.
- Block Caving is the lowest cost of all underground mining methods. It is a mass mining method where the extraction and breaking of ore depends largely on gravity. It is used when large ore bodies have good vertical dimensions, but have a barren or low-grade cap too thick to strip for open pit mining, or a cap, which extends to depths where stripping ratios make open pit mining uneconomic.
- Vertical Crater Retreat mining is a variation of sublevel caving, using a spherical charge to break the ore. Blasting is carried out at the base of vertical holes, making horizontal cuts and advancing upward. The shrinkage technique can be used for wall support. This method can be used where the ore body is well defined between steeply dipping walls and broken ore will flow to draw points under the influence of gravity.

In Northwestern British Columbia there have been several underground producing mines over the years, as the region is very rich in metallic mineral lands. In the Morice Plan area the most noticeable past producing underground operations were the Equity Silver Mine that operated as an open pit silver-gold-copper producer from 1981 to 1992 and then converted to an underground mine until its closure in January 1994. During its underground phase the mine employed 23 workers. The other noticeable underground past producer was the Dome Mountain Mine, which operated from in the 1980s and then again from 1992 until the middle of 1993. It was a gold producing operation and employed approximately 80 workers during the production phase.

Opportunity Analysis

Almost two-thirds of the Morice Plan area (970,000 hectares) is considered to be of extreme or high metallic mineral potential. Of this, 70,588 hectares covered by mining claims representing five percent of the total Morice Plan area. Perhaps the most promising underground mine development potential in the Morice Plan area is that associated with the Dome Mountain, Fireweed, and Silver Queen deposits.

Dome Mountain still has about 200,000 tonnes of known ore resource remaining. The key metal is gold, which is estimated at 14.9 grams of gold per tonnes. At the Fireweed property there is an estimated 580,000 tonnes of ore with 342 grams of silver per tonne. The proven reserve at Fireweed also has 2.2 percent zinc and 1.1 percent lead per tonne.

Finally, the Silver Queen property, with 205,000 tonnes of known ore barring tonnage has 830 grams of silver and 0.99 grams of gold per tonne. It's also estimated that the Silver Queen site has 4 percent per tonne of zinc and has reported the presence of the advance metals Gallium and Germanium.

Location Analysis

Underground mining faces many of the same logistical challenges faced by open pit mining operations. Besides the physical land surface over the mineral deposit, there would be specific infrastructure requirements including:

- **Access to an affordable energy supply** – New transmission lines may need to be developed to an underground mine site. While using diesel power for electricity can be an option for underground work it is often very expensive for processing if a lot of energy is required.
- **Transportation Infrastructure** – New mines are often located away from existing transportation infrastructure. Typically at a minimum, this involves building new road infrastructure. In more remote areas it is likely that all manpower and materials may need to be flown in by plane or helicopter. This significantly increases the cost of mine operation.

As well, the underground mine would need to ensure it had:

- **Skilled Labour Force** – Underground mining will require several specialized skills. Depending on the location of the mine it is possible that these employees will be located some distance from the actual mine site and fly in to complete their shifts. However, the mining industry today is also more likely than in the past to hire local workers and train them for specific jobs. This is particularly the case with new mines and their involvement local of indigenous peoples in remote areas.
- **Key Service Providers** – Underground mining requires numerous specialized pieces of machinery to move waste rock and ore and undertake the ore processing. This equipment needs on-going and timely service and maintenance support. Even though Smithers has a sizable mine contracting labour force, it is likely their will be significant leakage of mine expenditures from the local area.

Market Analysis

Current Production Trends

The known mineral resources in the Morice LRMP area consist primarily of five key metals; copper, lead, gold, silver, and molybdenum. The following highlights the current world production for gold and silver, which are more likely to be associated with underground mining.[16]

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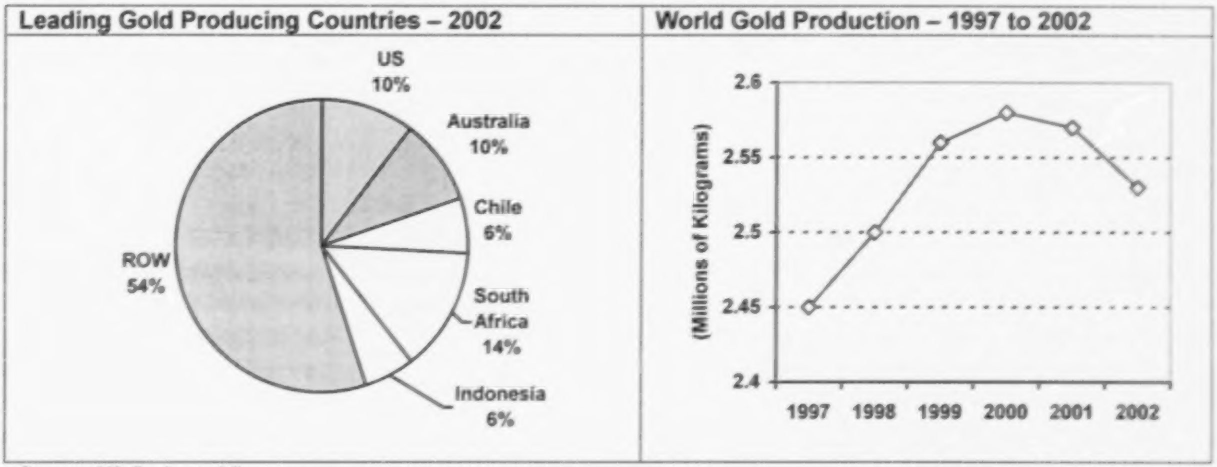
[16] Other key metal minerals for the Morice LRMP are assessed under the open pit opportunity case study.

Gold – Of an estimated 142,600 tonnes of all gold ever mined, about 15 percent is thought to have been lost, used in dissipative industrial uses, or otherwise unrecoverable or unaccounted for. Of the remaining 121,100 tonnes, an estimated 33,000 tonnes are official stocks held by central banks and about 88,000 tonnes are privately held as coins, bullion, and jewelry.

South Africa is the largest gold producing nation in the world producing approximately 395 kilograms of gold in 2002. Canada is the seventh largest producer mining 147,666 kilograms of the precious metal in 2002. Canadian companies are also major players in exploring and developing gold deposits around the world. Figure 9 outlines the leading gold producing nations and the general trend in gold production in recent years.

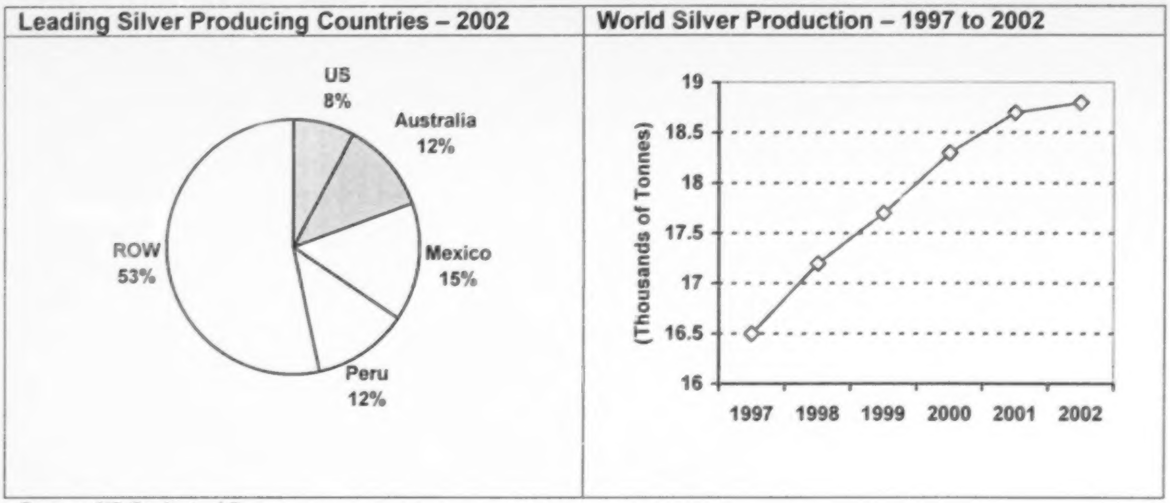
Figure 9. Leading Gold Producing Countries and World Gold Production



Source: *US Geological Survey.*

Silver – More than two-thirds of world silver resources are associated with copper, lead, and zinc deposits, often at great depths. The remainder is in vein deposits in which gold is the most valuable metallic component. Although most recent discoveries have been primarily gold and silver deposits, significant future reserves are expected from major base metal discoveries that contain silver. Although the price of silver and improved technology may appear to increase the reserves and reserve base, the extraction of silver from these resources will be driven by demand for the base metals (Figure 10).

Figure 10. Leading Silver Producing Countries and World Mine Production



Leading Silver Producing Countries – 2002

World Silver Production – 1997 to 2002

Source: *US Geological Survey.*

Market Demand and Price Trend

Gold and silver have been showing renewed strength in 2003. However, between 1998 and 2002, gold prices had shown marked weakness, consistently selling below or near $300 an ounce. However, in recent months gold has moved up strongly. Gold is anticipated to remain strong over the next few years. Gold has traditionally served as a hedge against uncertainty and with recent world events gold is again starting to play this role. However, probably more importantly, gold is priced in US dollars. Currently the United States is aggressively expanding the money supply, which in turn devalues the US currency and inflates the price of gold.

Silver is also expected to trend up over the next couple of years as well but is anticipated to lag the increases that will be experienced by gold. The primary reason is that silver, while it will often increase in sympathy to gold prices, trades more like base metals, driven by industrial demand for the metal. Table 18 outlines the historical prices for gold and silver.

Table 18. Commodity Prices for Gold and Silver

	Gold	Silver
	(US$/oz)	*(US$/ troy oz)*
1995	384.16	5.19
1996	387.82	5.18
1997	331.10	4.89
1998	294.18	5.53
1999	278.78	5.25
2000	279.00	5.00
2001	271.09	4.39
2002	309.97	4.62
2003 F	353.65	4.80
2004 F	373.08	4.94

Source: TD Bank Financial Group Commodities Price Report.

Conclusion

Given the current activities and high mineral potential in the Morice LRMP area, there is a strong likelihood that further mine development will take place locally over the near-term (two to five year period), particularly if metal prices recover strongly, as anticipated, over the next twelve to eighteen months. However, it is difficult to determine if this mining will manifest itself as an underground operation.

Recommendations to the LRMP Table

Recommendation – The LRMP should consider zoning the areas around the Dome Mountain, Fireweed, and Silver Queen deposits as industrial use.

Recommendation - Access to these sites should be identified to reduce land use conflicts with non-industrial uses later.

Recommendation - Access to these sites for utilities should also be considered during land use designations.

Recommendation - Consideration should be made to account for the establishment of a training facility or training opportunities to provide potential mine developers with a local, skilled workforce.

Development of a Copper Smelter

Overview

In the Northwest the current Alcan aluminum plant in Kitimat serves as the only large regional metal processing facility. Kitimat draws on metal inputs from around the world and was only located in Kitimat because of the ability to access affordable hydroelectric power. With regards to local copper smelting, the Anyox copper smelting operation and mine was active for approximately the first thirty years of the 1900s and was located up Observatory Inlet south of Stewart.

The only other large smelter in BC is Teck Cominco's integrated smelting and refining complex in Trail. This smelter has been operating almost continually for close to 100 years and processes more than 700,000 tonnes of concentrates each year, yielding a wide range of metals with the two major metals being zinc and lead. While this facility was once dependent on the nearby Sullivan mine it now draws on concentrate from Alaska, northwestern US and South America.

Teck Cominco Inc, Smelter, Trail BC

Two smaller metal refinery businesses also operates in British Columbia including Technic Inc. in Richmond that has a melting furnace for producing bars for precious metals and Thompson Creek Mining Co. at Fraser Lake that undertakes a flotation and roasting process to produce Mo concentrate and molybdic oxide.

Hydrometallurgical (a.k.a. Hydromet) operations use different refinement processes to extract copper form concentrate. While the end result is the same the processes used to extract the copper is somewhat different. Hydromet processes recover metallic copper directly from concentrate or leach solutions and do not require a traditional smelter. A recent test of this relatively new process was undertaken on the Gibraltar deposit (now closed) near Williams Lake. If hydromet proved to be an economical way of copper extraction in the Pacific Northwest, it might start a review of the province's existing uneconomical deposits.

While hydromet operations may prove to be a worthy operation to explore, as yet this type of operations is still relatively new. With this in mind this analysis will focus solely on copper smelting.

Opportunity Analysis

The only operating mine in the study area is the Huckleberry Mine. This mine is a copper molybdenum producer located southwest of Houston on the shores of Tahtsa Reach. The mine is operated and partly owned by Imperial Metals of Vancouver. It continues to be challenged by ongoing low copper prices and the recent strengthening of the Canadian dollar. Mining plans may have to be revised to meet these challenges and may result in a shorter mine life. The copper concentrate is trucked to Stewart for shipment to Japan, while the molybdenum concentrate is trucked to and sold in Vancouver. Besides this active mine site the region also has many rich mineral deposits and there are several specific areas in the Morice Plan area that feature copper deposits.

Given the nature of copper smelters a long term and secure supply of concentrate would have to be assured with in the study area before a copper smelter would be considered.

Location Analysis

The development of a copper smelter will require the development of significant infrastructure. Several of these infrastructure factors will play against locating a sizeable facility in the Morice Planning area including:

- **Accesses to tide water** - most copper smelter facilities are located on tidewater. Transportation of raw material in and finished product out is a global activity. The ability to directly access ocean transportation is a critical cost factor. Facilities such as Teck Cominco's Trail smelter have been fortunate to survive away from tidewater but this has placed them at significant competitive disadvantage. Copper concentrate from BC's largest copper mine, Highland Valley Copper, is almost exclusively sold to smelters in Asia.
- **Hydro Electricity Power** - both Alcan and Teck Cominco are hydro electricity generators and have secured very affordable energy costs. Power is a key cost component of a smelter and would be a critical factor in locating a facility in the study area. Power arrangements such as those received by Alcan and Teck Cominco are unlikely again in BC.
- **Economies of Scale** – copper smelters rely on economies of scale to achieve sustained affordability. As well, they typically require several hundred millions of dollars in investment to develop. In fact, Teck Cominco's recent upgrade at the Trail smelter required over $270 million to upgrade and modernize their existing operation.

Besides the infrastructure issues that may arise, there are human resource and environmental issues that will likely be critical in selecting a smelter site, specifically:

- **Skilled Labour Force** – a copper smelter could create upwards of a 1,000 direct jobs, many of which would be skilled trade's people. The labour force in the Morice Plan area is small and would require considerable effort on the part of the operator to attract and train the appropriate labour force.
- **Competitive Wage Costs** – Northwestern BC has a high level of unionized work force. Wage costs of operating a copper smelter would be compared to wage costs in

other parts of the world, likely in Asia were most smelting growth has occurred recently. It is unlikely wage costs in the region will be competitive with Asian producers.

- **Environmental Considerations** – Copper smelting creates several different types of air emissions including sulphur dioxide, arsenic, cadmium, lead, zinc, mercury, and antimony. As well, the processing also generates acid plant blow-down slurry and slag (iron sulphides and silica). Given these options if a smelting plant were to be considered in the Morice LRMP area it would need to undergo careful environmental considerations.

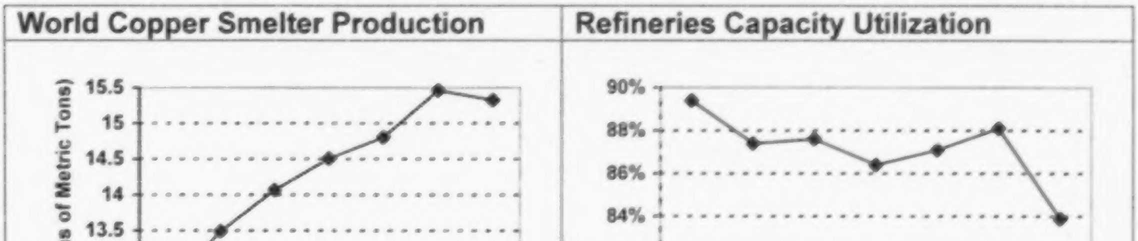
There are likely no suitable sites for traditional copper production in the study area, as well, at this time it would be challenging to demonstrate a sustainable supply of local concentrate from the region.

Market Analysis

Current Market Trends

In 2002, world copper smelting production consisted of 13.44 million metric tonnes of primary refined production and another 1.89 million metric tonnes of secondary refined production for a total of 15.33 million metric tonnes. World smelter production in copper has been steadily rising in recent years. Between 1996 and 2002 the smelter production of copper has risen almost 16 percent. At the same time utilization rates have held at about 88 percent. However, in 2002 both utilization and production turned downward. Figure 11 outlines the production of world copper smelter production by millions of metric tons and the percent capacity utilization between 1996 and 2002.

Figure 11. World Primary and Secondary Copper Refinery Production – 1996 to 2002



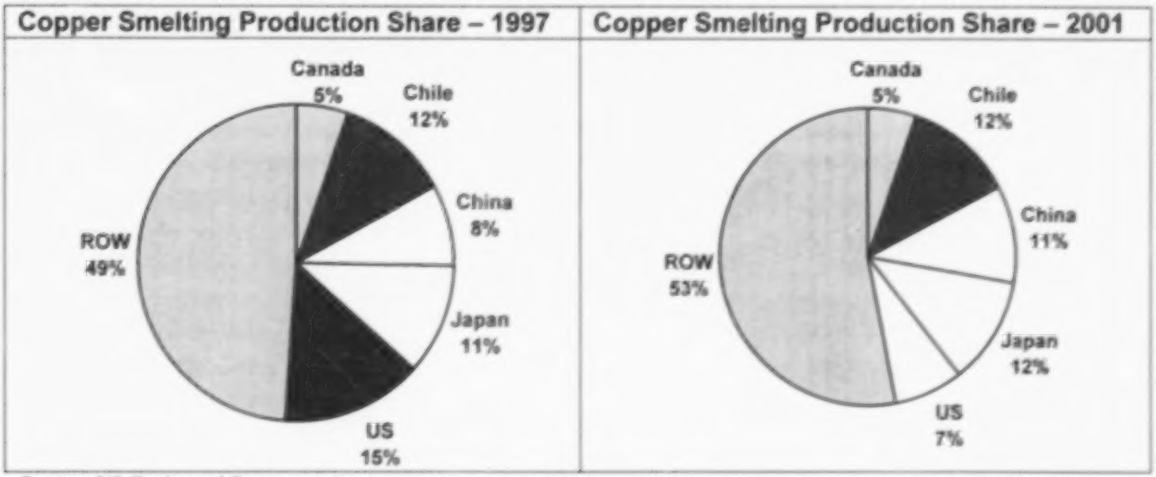
World Copper Smelter Production

Refineries Capacity Utilization

Source: *International Copper Study Group.*

While world copper smelting production has been rising in recent years the growth has been primarily concentrated in Asian countries. To a lesser extent, there has also been growth in Russia and Australia. At the same time, copper-smelting production has been relatively flat in Europe and has actually declined in the United States and Mexico. Canadian copper smelting production has also been flat over the period. Figure 12 outlines the percentage share of copper smelting production for the four largest copper smelting producing countries, Canada, and the rest of the world in 1997 and 2001.

Figure 12. Change in Copper Smelting Production among Key Copper Smelting Nations.



Copper Smelting Production Share – 1997

Copper Smelting Production Share – 2001

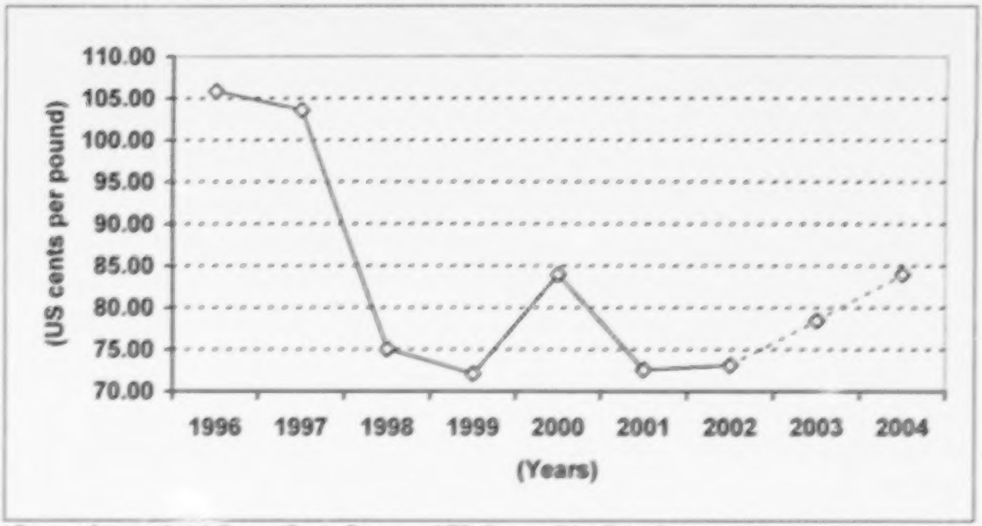
Source: *US Geological Survey.*

Market Demand and Price Trend

Copper is used in a wide range of products. Typically the markets for copper are broken into plumbing heating, automotive, power utilities, air conditioning and refrigeration, and telecommunications. Between 1990 and 2000, North American copper consumption rose by 28 percent going from 3,438 metric tons in 1990 to 4,417 metric tons. In general, world copper consumption has also been on the rise although consumption was down in 2002. Asia is becoming an increasingly important consumer of copper and leading the growth in new demand. For example, in the first half of 2003, world copper demand increased by approximately 1 percent world wide with the main contributor to the recovery in copper usage coming from Asian consumption increase of 11.5 percent (China +23.5 percent and Japan +8.6 percent). During this same period usage in North America declined by 4.8 percent (Canada –17.1 percent, US –5.4 percent).

Figure 13 outlines the historical price for copper and the projected price for copper over the next two years. Over the longer term copper prices are anticipated to continue to climb over recent weak prices, particularly as China and other emerging economies use more of these commodities.

Figure 13. Copper Prices by US Cents per Pound of Copper – 1996 to 2004



Source: International Copper Study Group and TD Commodities Price Report.

Conclusion

World demand and growth in copper consumption, particularly in Asia, would suggest that future copper smelting capacity would need to be developed in the future. However, it is unlikely that in a viability assessment that the Morice LRMP area is going to be a strong candidate for this new production capacity. The Morice LRMP will have to demonstrate a clear comparative advantage against locations such as China, Japan, and Chile. Overall, locating a new copper smelter inland within the Morice LRMP area is highly unlikely unless major incentives such as cheap power can be obtained.

Recommendations to the LRMP Table

Given the many hurdles in the way of developing a copper smelter in the Morice area it is not considered viable to pursue. The LRMP need not consider this as an opportunity to account for in its land-use decision–making process.

Development of Oil and Gas

Overview

Key facts about the oil and gas industry in BC are as follows:

- It has become a key component to the overall provincial revenue stream. In 1996 provincial revenues from the oil and gas sector were $367 million while in 2002 this had risen to $1,370 million.

- It is based in the northeastern region of the province, where there has been petroleum exploration and development since 1952. The northeast accounts for 99 percent of BC production.
- The sector provides more than 14,500 direct and 23,000 indirect jobs.[17]
- Almost all production in BC comes from the giant Western Canada Sedimentary Basin. The other resource regions in the province are considered immature, with limited drilling, minimal production and little pipeline infrastructure.
- Current remaining reserves estimates of 2.5 million cubic metres of oil and 22.6 billion cubic metres of natural gas. The undiscovered resource potential of natural gas and coalbed methane (currently being estimated by the Ministry of Energy and Mines) is in the order of trillions of cubic feet.
- The BC oil and gas industry is comprised primarily of companies involved in what is termed upstream activities, that is, the exploration and production sector of the industry. Exploration involves the search for petroleum including seismic surveys and drilling. Production describes the steps of getting petroleum out of the ground. There is very little downstream processing activity occurring in the province.
- The major oil and gas companies that drive production in BC are mostly head quartered in Alberta. The bulk of the BC oil and gas industry is the service portion that supports the exploration, drilling, production and servicing of the thousands of wells across the region.

Opportunity Analysis

With the increased natural gas demand domestically and for the export market, the Ministry of Energy and Mines (MEM) has showed increased interest in resource development outside of the northeast region of the province. Offshore oil and gas potential in the Queen Charlotte Basin and coalbed methane production in several large interior basins has been studied by MEM.

The southern portion of the Bowser Basin and the Sustut Trough lie within the Morice LRMP area. The Bower Basin is extremely large geographical area extending from approximately Telkwa in the south connecting to the Whitehorse Trough and extending upwards to the Yukon. The attached map below outlines the oil and gas fields throughout British Columbia.

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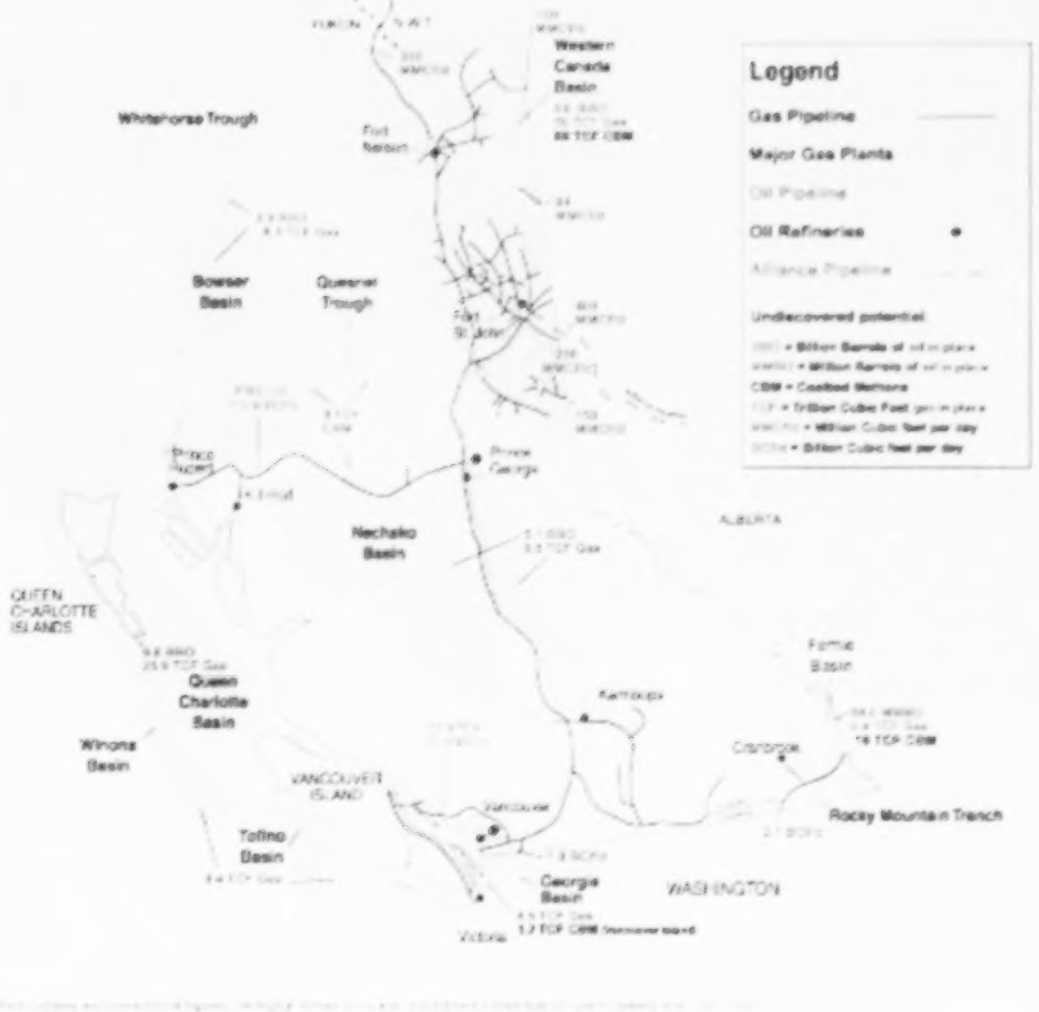
[17] http://www.em.gov.bc.ca/Oil&gas/OGResources.htm

Figure 14. BC Hydrocarbon Resources and Production


Legend
Gas Pipeline
Major Gas Plants
Oil Pipeline
Oil Refineries ●
Alliance Pipeline
Undiscovered potential
BBO = Billion Barrels of oil in place
MMBO = Million Barrels of oil in place
CBM = Coalbed Methane
TCF = Trillion Cubic Feet gas in place
MMCFD = Million Cubic feet per day
BCFd = Billion Cubic feet per day
YUKON
N.W.T.
Western Canada Basin
88 TCF CBM
Whitehorse Trough
Fort Nelson
Bowser Basin
Quesnel Trough
Fort St. John
Prince Rupert
Prince George
Nechako Basin
ALBERTA
QUEEN CHARLOTTE ISLANDS
Queen Charlotte Basin
Winona Basin
Fernie Basin
Kamloops
Cranbrook
16 TCF CBM
VANCOUVER ISLAND
Vancouver
Rocky Mountain Trench
Tofino Basin
Georgia Basin
WASHINGTON
Victoria
1.7 TCF CBM

Source: Ministry of Energy and Mines

The Bowser Basin combined with the Whitehorse Trough has been estimated to have 2.5 billions barrels of oil and another 8.3 trillion cubic feet of natural gas. The area saw some oil exploration activities in the late 1960s and early 1970s. However, there is currently no commercial activity.

The Ministry of Energy and Mines is actively investigating the approach to generate new interest in the region. Currently they are working with the Canadian Geological Survey to assess the fundamental geography in the area. The goal is to produce accurate geophysical information at a regional level. As well, the Ministry is actively promoting the area to industry.

Currently there are no active oil and gas tenures in the Bowser Basin but it is anticipated that this could happen as early as the summer of 2004. Overall, it is possible that if interest can be generated then the first exploration drilling by the private sector could take place within the next two to three years. Depending on various location features, it is possible that oil and gas production could take place within three to five years of the discovery of the first marketable oil or gas field.

Location Analysis

The following development issues are important for gauging the extent of the oil and gas industry in the region:

- **Oil and Gas Resource Access** – It goes without saying that upstream oil and gas sector development would be premised on proximity to a commercially viable resource. However, an equally important prerequisite is the ability to access this resource. In BC, potentially productive areas have been effectively off-limits even though modern technology would allow responsible development and operations. Once development rights have been awarded, governments should support responsible access to the resource.
- **Business Climate** – As noted above, outside of the northeast, basins in BC are relatively unexplored and undeveloped. Attracting industry interest and capital will be contingent on the region faring better than competitive regions for new investment. Large, multi-national oil and gas producers assess their opportunities on a world-wide scale and a complex set of criteria are applied to determine where development efforts should go. These can be loosely classified as business climate measures and include political stability, a reliable and transparent regulatory process, reasonable environmental regulations, tax and financial inducements and a supportive government strategy and policy environment. The investment climate has improved significantly in recent years and with the province's policy and program efforts aimed at attracting more investment to the industry should bode well for future development.
- **Supportive Infrastructure** – Upstream oil and gas development requires an extensive investment in infrastructure, notably roads and pipelines. The extensive logging road network across the region would facilitate seismic and exploration activity and lower the costs of new development. Although mountainous, the Bulkley-Nechako region has road conditions that are less troublesome than the northeast, where soil and climatic conditions play havoc with the operating season. One advantage of the region is that the Pacific Northern Gas pipeline, which runs from the Alberta border to Prince Rupert and Kitimat, transects the southern-most portion of the Bowser Basin.
- **Supportive Industry** – As the areas economy is resource-based, it is already well positioned to support upstream oil and gas development. Engineering, geophysical,

transportation and field services can be supplied either within the region, or from close by.

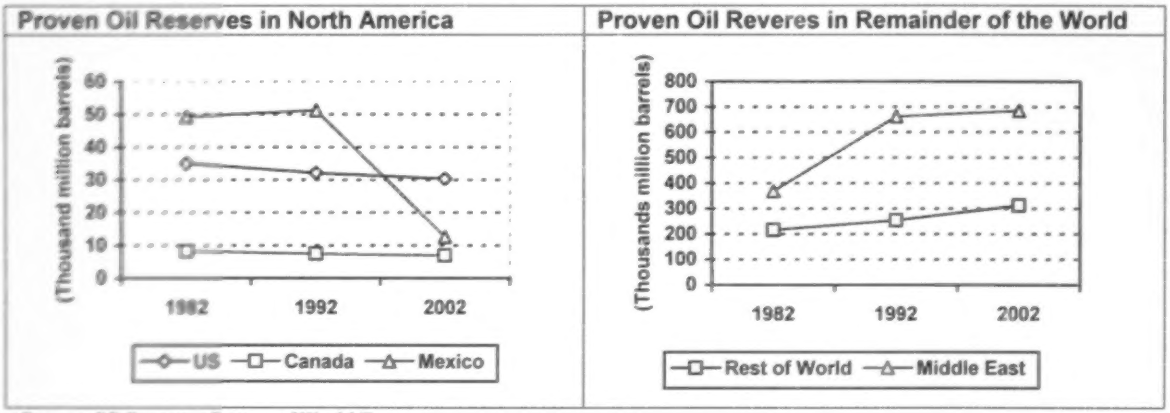
- **Business and Development Costs** – Any large capital project will assess business and development costs in support of an investment decision. A recent study for the North Coast region showed business costs to be competitive in most areas and generally supportive of new industrial development.[18] Since there is no previous history of oil and gas production in the northwest, the actual cost of production will not be known until further exploration and project development occurs.
- **Competitive Tax and Royalty Regime** – The tax environment has improved in BC in recent years with the elimination of the capital tax and sizeable reductions in business and personal income tax rates. For the oil and gas industry specifically, the PST rebate on production equipment purchases and recently announced a royalty credit program have improved the provincial competitive position.

Market Analysis

Current Production Trends

Proven Oil Reserves - In 2001, proven reserves in North American (USA, Canada, and Mexico) represented only 4.8 percent of the total reserves. As illustrated in Figure 15. These reserves have been declining for the past twenty years. However, the story is very different between countries. In Mexico, with the largest North American reserves, there has been a sharp decline since 1991, while Canada and the US have shown only small declines in reserves. Meanwhile world reserves have been increasing over the past twenty years. Growth in the world oil reserve has been lead by the noticeable increase in the Middle East, which in 2002 represented 65.4 percent of the worlds proven reserves.

Figure 15. World Oil Proven Reserves (1982 to 2002)



Proven Oil Reserves in North America

Proven Oil Reveres in Remainder of the World

Source: BP Statistics Review of World Energy.

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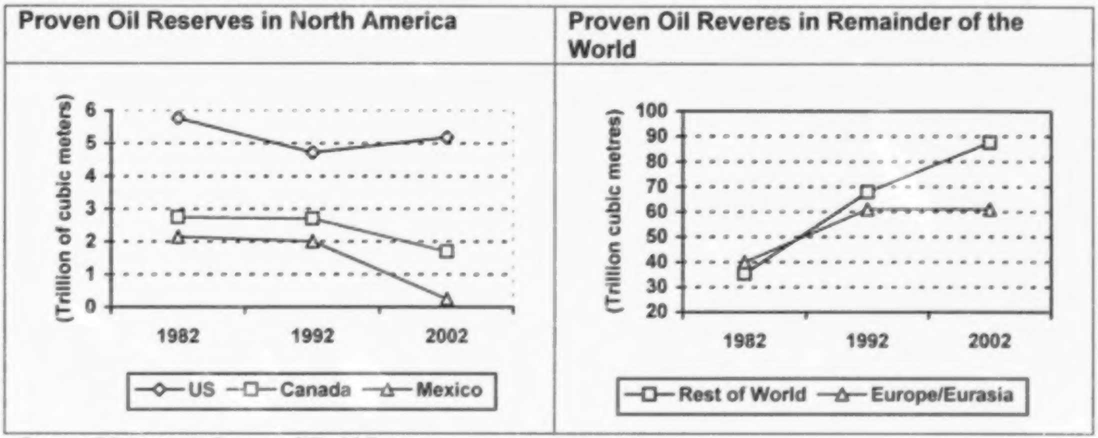
[18] Lions Gate Consulting Ltd. (2002).

Proven Gas Reserves – Overall, proven natural gas reserves have been declining in North America in recent years with only the United States managing to increase reserve levels since 1992. In 2002, North America made up 4.2 percent of world proven reserves. Natural gas is typically transported by pipeline to consumers so the global supply is not as important as it is for oil; however, elsewhere in the world there has been a sizeable and steady increase in proven reserves, particularly in the Middle East. Figure 16 highlights North American and world gas reserves.

Figure 16. World Gas Proven Reserves (1982 to 2002)

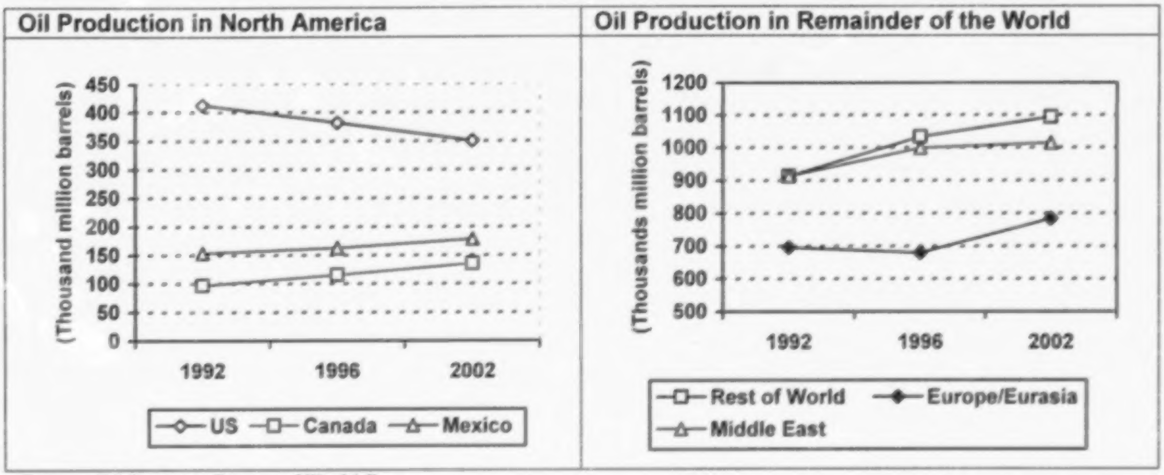


Source: BP Statistics Review of World Energy.

Oil Production - While North America has a small amount of the world's proven oil reserves; it is a much larger player when it comes to the current world production levels. In 2002, North America represented 18.7 percent of world production with approximately half of the North American total coming from the United States. Over the past ten years the production from the United States has been declining while production in Mexico and Canada has been increasing.

For the rest of the world, there has been a general increase in world production in the last ten years. The most noticeable increase has been the rapid rise in Europe and Eurasia since 1996. This increase is primarily driven by sharp increases in production from the Russian Federation. Figure 17 highlights the world oil production focusing on activities in North America.

Figure 17. World Oil Production (1992 to 2002)

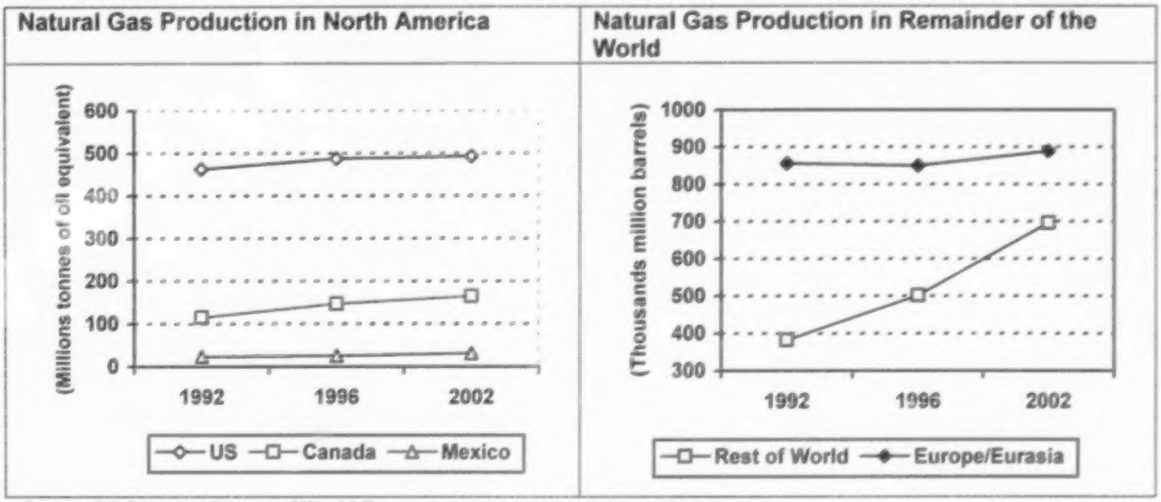

Oil Production in North America

Oil Production in Remainder of the World

Source: *BP Statistics Review of World Energy.*

Gas Production – In North America, the United States made up 71.4 percent of North American production and 21.7 percent of the world's natural gas production in 2002. Canada, which reached natural gas production of 165.2 million tonnes oil equivalent in 2002, makes up 23.9 percent of the remaining North American share. Overall, North American natural gas production has grown a modest 14.6 percent in the last ten years. Meanwhile, Canadian production has climbed 43.5 percent in the same period. Elsewhere in the world natural gas production from Asia and the Middle East has jumped sharply to lead over all world production noticeably higher. Figure 18 illustrates the gas production levels in North America and elsewhere in the world between 1992 and 2002.

Figure 18. World Natural Gas Production (1992 to 2002)


Natural Gas Production in North America

Natural Gas Production in Remainder of the World

Source: BP Statistics Review of World Energy.

As expected, the United States is the largest destination of the oil and gas that is export by Canada. In 2002, the United States received 98 percent of all oil and almost 100 percent of gas exported from Canada.

Market Demand and Price Trend

Oil Demand and Prices - Oil prices have been strong over the past twelve months. Concerns of Middle East supply disruption around the war in Iraq have priced in a "war premium" in recent months. However, world oil prices are influenced by more than typical supply and demand factors with the influence OPEC's oligopolistic pricing and production behaviour having a noticeable influence on world pricing. As well consumer inventories also play a roll in pricing consideration. This has been primarily driven by consumer inventors and import requirements for the US and other major industrial nations. In 2001, net imports of oil accounted for 55 percent of all US oil consumption; this is up from only 37 percent in 1980.

Over the longer term prices are anticipated to drop back from current levels of over $30 a barrel. However, the price will remain firm with the 2020 price of oil anticipated to be $25.50 (measured in constant terms).

Natural Gas – Natural gas prices are more dependent on local factors and supply demand factors. Given these local factors and that natural gas moves around the world like oil, prices in North America are noticeable below those in Europe. In North America, natural gas prices tumbled 15 percent on average in July, as cooler-than-normal summer weather across much of North American dampened demand. However, overall natural gas prices remain about 60 percent higher than a year ago. Prices are expected to remain at these levels for the next couple years and will be influenced by changes in supply and demand from within the North American market. Even looking out to 2020, natural prices are anticipated to remain at price levels currently experienced or slightly below (in real dollar terms). Table 19 outlines the change for oil and gas over the past several years and the anticipated price for 2003 and 2004.

Table 19. Commodity Prices for Oil and Gas

	Oil	Gas
	(US$/barrel)	*(US$/MMBtu)*
1980	37.96	
1985	27.99	
1990	24.50	1.05
1995	18.43	1.70
1996	22.13	2.52
1997	20.59	2.47
1998	14.42	2.16
1999	19.24	2.32
2000	30.31	4.31
2001	25.87	4.02
2002	26.09	3.36
2003 F	31.25	5.60
2004 F	26.36	5.84

Source: Commodities Price Report and BP Statistics.

Conclusion

The long-term demand, supply and price scenarios for oil and gas suggest that further development of this resource in the province of BC is inevitable. However, outside of the northeast, the industry is only in its embryonic phase. There is practically no production, very little exploration history and an undeveloped infrastructure base. It will take a concerted effort on behalf of government, the private sector and the public to set in motion the conditions for new investment and development.

Recent provincial government efforts to stimulate investor activity with a provincial energy plan and a favourable strategy/policy framework will help. Communities and regions which are interested in diversifying their economic bases and desire the high-paying employment which this industry can generate will have to coordinate their own planning, such as the LRMP process, to ensure the business climate is conducive to industry development.

However, there is a time risk overhanging the undeveloped oil and gas potential in British Columbia associated with the anticipated transition to alternative fuels, particularly hydrogen. Currently hydrogen is anticipated to begin making an impact in the world oil consumption some time after 2020 and natural gas will follow roughly ten years later. Once this transition begins it is likely oil and gas will be sourced from areas where infrastructure is in place and costs can be minimized.

Recommendations to LRMP Table

Recommendation – The LRMP should consider zoning the area at the north end of Babine Lake as industrial use. Due to its proximity to established service centres; Smithers and Houston, this area will likely see some amount of exploration in the coming years.

Recommendation - Access to this area should be identified to reduce land use conflicts with non-industrial uses later.

Tourism and Recreation

Introduction

Tourism accounts for approximately 5 percent of the economy in the Regional District of Bulkley-Nechako. This percentage is expected to grow substantially as more and more of the population looks for new ways and locations for spending their leisure time. Tourism potential in the Morice is enormous and it is largely undeveloped, however, it is anticipated to become a major income and job creation engine over the next several years.

For a detailed assessment of Tourism Industry in the Morice refer to the Morice Land and Resource Management Plan: Socio-Economic Base Case.

The following sections explore the criteria and conditions for developing these opportunities.

Sector Development Strategy

With a diverse, pristine landscape, abundance of wildlife, and low population density the tourism industry in the Morice is primarily nature based. With a wealth of natural beauty the economic development strategy for tourism is focused on maintaining natural wilderness experiences and promoting the region as a wilderness attraction. To implement this strategy the LRMP should consider the following courses of action:

- Ensure land-use designations allow access to high-valued tourist sites.
- Ensure special management in industrial zones accounts for visual objectives for high valued tourism sites.
- Address land-use conflicts between industrial and non-industrial users and between motorized and non-motorized users.

The tourism sector is heavily influenced by geo-political events at home and abroad. Acts of terrorism such as the 911 attack on the United States have an enormous and long felt affect of the tourism industry. The combination of a SARS outbreak and the threat of a mad cow outbreak were serious blows to a sector of the economy that was trying to rebound.

In a heavily competitive marketplace the Morice stands to capture its share of the market interested in wilderness experiences. Land-use decisions and management direction will ultimately determine if the tourism industry can prosper in this highly volatile environment.

Identified Opportunities

Table 20 lists the Economic Development action Plan Working Group's tourism opportunities and their respective rankings.

Table 20. Identified Tourism Opportunities and rankings

Opportunities	Ranking
Hiking trail development / portage / historic trails reclamation / interpretive trail development	22
Guided canoe trips	22
House boating	23
Sport fishing	22
Destination resorts/lodges	21
Wildlife viewing / Photography	20
Snowmobile tours / destination snowmobiling	22
Commercial rec. site development (incl. FS rec. sites)	22
First Nations cultural heritage site development	23
Guided tours of historic mines / prospecting tours	22
Fish guiding	21
Fossil bed tours	20
Adventure tourism (i.e. River tours)	22

Using the ranking criteria to identify top priority opportunities, six were selected for further analysis. Those opportunities were; hiking trail development / portage / historic trails reclamation / interpretive trail development, house boating, snowmobile tours / destination snowmobiling, commercial rec. site development, First Nations cultural heritage site development, and guided tours of historic mines / prospecting tours. The ranking process identified four other opportunities of relatively equal priority. The large number of opportunities is a reflection of the interest the local communities have in developing this sector of the economy. This was also evident in the outcomes of the SWOT analysis.

Given the large number of opportunities of equal ranking and with limited resources to undertake analysis each member of the Working Group was asked to identify their top six opportunities. The six opportunities highlighted in yellow above were chosen to undergo technical analysis. It should be noted that all of these opportunities were felt to have merit and should be explored through some other process.

Westcoast CED Ltd., the consultant hired to undertake the technical analysis of these opportunities, also provided an analysis of an opportunity they felt would be of benefit to the tourism industry in the Morice; Tour package marketer (a person or company that works for all tour operators in the area). It is presented in this report as it has a positive influence on the sector.

For further information on these and other economic development opportunities interested individuals are asked to review the Ministry of Sustainable Resource Management, Building Blocks. Information on these Building Blocks can be obtained online at http://srmwww.gov.bc.ca/rmd/ecdev/analysis/building_blocks.htm .

Hiking Trails

Overview

Outdoor recreation, including walking, boating, fishing, camping and hunting, is very popular amongst local residents and visitors. The Morice LRMP area is very sparsely populated and is primarily crown land. Forestry campgrounds, walking trails, and popular canoeing routes already exist. The area is a prime location for late spring, summer and early fall flat water canoeing, camping, fishing and walking. Summer trails with good winter access may also serve the interests of backcountry skiers and snowmobilers. The key question is: Are there commercial hiking (backcountry winter use) and canoeing potentials in the area?

Part-day hikes are usually easy walking trails where youth (under 12 years of age) and those not accustom to long hilly walks are challenged but not physically or emotionally tested. They are great additions for already planned holidays or visits in the region. They are easy to find (mapped) with signs for directions and are easy to access (distance and road quality) by 2 wheel drive cars. All-day hikes are much longer, more challenging physically and usually require an end point (e.g. a summit, ridge or cabin with access to great views) or a designated loop. These day-trip routes are usually popular amongst locals regionally (up to 1.5 hours away) and to visitors planning a visit to or through the region. They require a moderate level of fitness and some outdoor experience. Access to trail head by 2 wheel drive vehicle is best as it increases the number of parties that can access the trailhead. The most popular all-day walks in the high country occur above tree line, or along major coastlines. Overnight hikes require locations where either a base camp can set (usually near water with a great view) and then day hikes taken from or where travel from one ridge to another is relatively easy or where a multi-day hike provides access to mountain peaks or ridges. As the length of the trip and the difficulty increases then the less trail development is required.

Opportunity Analysis

The Morice LRMP area geographically is filled with many large and small lakes. The area in the northern half is generally rolling treed high hills and valleys. The area in the south continues the pattern ending at Ootsa Lake with more open areas on south facing slopes. The area to the west moves from rolling high hills to step mountains. The western portion of the area boarders the Telkwa Range and the Cascade Mountains (part of the Coastal Mountain Range). Within the western toe of this area there are numerous small lakes connected by rivers, or creeks. Watersheds are close together making moving from one lake and river system to another relatively easy. In the most westerly parts of the Morice, access is by air and water only.

There are three very distinct opportunities in the South Western part of the Morice area. These three are wilderness vehicle camping combined with short walks and water activities, chain-lake canoeing, and high elevation hiking. Given their distinct markets each has been reviewed independently.

Vehicle Camping Combined with Short Walks and Water Activities

The many small lakes, good access on forestry haul roads, the established network of Forestry campsites, the quality freshwater fishing, short part-day hikes and remote quiet feeling maintained by the limited use each of the areas creates opportunities for vehicle based camping. There are many areas that provide quality sites for camping and boating in relatively protected small lakes. These include Owen Lake, Poplar Lake, Nadina Lake, Morice Lake (a larger body of water) and Lamprey Lake to name just a few. An opportunity exists to market and promote these areas for low cost low risk camping and area for holidays, all within easy striking distance of Houston and Highway 16. Short, easy, one or two hour walking trails connected to these campsites enhances the amenities associated with the camp sites. The Houston Community Forest provides trails in this category.

Chain Lake Canoeing

There already exists one good chain lake system – Nanika-Kidprice Canoe Route – where four lakes are linked together with 3 short portages. This area is very novice friendly, has good camping spots on all four lakes with vehicle access only at the head of the chain. The opportunity exists to extend this popular chain by building an additional trail from Kidprice Lake to Nanika Lake. Depending on water levels (time of the year) the trail might need to be up to 6 km in length to join the two lakes. This chain of lakes can be used for day trips or multi-day trips.

Kidprice Lake is connected to Morice Lake via Nanika River. The falls at the exist of Kidprice prevent direct canoe exit from Kidprice but with a short trail around the falls to area approximately 1 km below the falls would provide canoe access to Morice lake and then eventually a pull out at Morice Lake Forestry Campsite. There are a few log jams along the river that would require short (up to 400m) portage trails around them.

A similar opportunity exists in the Twinkle/Needle Lakes area. Here the accesses between the lakes would either be on foot in the creeks or on short portages around the creeks depending on water levels and time of the year. These are small lakes where day trips and multi-day trips can be designed with easy portages in between the lakes. The Twinkle Lake forestry campsite is an obvious staging point.

Hiking – all day and overnights

At this point walking trails exist in a number places in the region. There are excellent view points in places like Nadina Mountain (2124 meters – almost 7000 feet), the Telkwa Mountain meadows, Owen Hill, and Mt. Sweeney. Access to the more remote high country is confined to air or power boat. The southwest area, with its limited access, does back into the rugged Cascade Mountains with peaks nearing 9000 feet, e.g. Mt. Dubose. The key limitation or asset in the future will be the limited access.

Location Analysis

Vehicle Camping Combined with Short Walks and Water Activities

The area south west of Houston is not well known outside of the region as a prime camping and short family type holiday location. The area has not been well marketed to those who have already decided to use Highway 16 for their visit to the Northwest. In comparison to the Southern Cariboo or Central Kootenays, the quality of the camping boating, short walks, and easy stays is not well known. Promotion to those who have already decided to come to the northwest, using Highway 16 for their visit is critical. Increased awareness will increase the use of the forestry campsites, small lakes and associated walking trails. If the marketing effort is successful then the impact will be felt in Houston for those providing supplies to campers and in the use of the forestry campsites. Eventually the heavier used sites could cover their own operating costs (e.g. Owen Lake and Morice Lake).

Chain Lake Canoeing

Canoeing between lakes is very popular in eastern Canada. It is not nearly as well know or as popular in BC. This area provides BC with another area where this enjoyable activity can be promoted. Currently, the Bowron Lakes chain – east of Quesnel is an example of a chain of lakes that has become a regional, provincial and international attraction. It is important to note that there is a daily maximum number of people able to start the chain each day and a daily maximum of those that area able to reserve (additional cost). For many of the days in July and August the limit is reached and interested parties are turned away.

Bowron Lake

The lake chains in the Morice are not at the scale or the level of recognition of the Bowron Lake chain but there is ample room to move it from current level of use to something much higher. As other options like the Bowron Lakes, reach their maximum carry capacity, the additional distance (or same distance if flights are involved) will be less of a barrier. The level of paddling knowledge and skill require are at the novice level, making the lake chains in the Morice accessible to a wide spectrum of potential users. The experience at Bowron Lakes shows that vehicle access from the nearest airport (Smithers or Prince George), overnight camping accommodation at the trail head, canoe, paddle, lifejackets, portage cart rentals and lodge type facilities near the trail head for access at the end of the trip are required and enjoyed.

Getting people to the Morice and in a canoe on one of the lake chains will require a substantial amount of time and coordinated resources. For a person coming by vehicle from Edmonton the difference between accessing the Morice and accessing the Bowron is approximately 1 extra hour. For a person coming by air through Vancouver the time is approximately the same. At least 500 of the people who came to the Bowron Lakes each year came from outside of North America.

Hiking – all day and overnights

Providing quality day hiking opportunities for those visitors who have already decided to come to the Northwest and want to spend at least 1 day hiking in the mountains is a relatively easy task. The limitations are mainly access to the trailheads and then quality maps, guide books and signs. In situations where visitors do not have their own vehicles, commercial access that is readily accessed is required. The Northwest – the Morice included - has numerous quality day hiking areas because of the good access via logging roads or old mining roads. Often the lack of easy to access general information about trails, and then limited access to good maps, guide books and roads limits use of the hiking areas.

Getting hikers to the Northwest requires successfully interacting with potential visitors prior to their decision to select a hiking area and then out competing many other better known areas including the Rockies, the coast mountains near Vancouver, the Selkirks/Monashees and the two main parks in the Central Kootenays. The relative absence of marketing materials, guides, transportation to trail heads, organized trails and packaged trips puts the Morice at a distinct disadvantage. Hungry hill Adventures and hiking trip possibilities on the BC North.ca Web site are examples of the type of business and marketing that is required to provide information to those interested in hiking to consider the Morice for a potential multi-day hiking trip.

Market Analysis

Vehicle Camping Combined with Short Walks and Water Activities

For many living in the Northwest accessing other regions for holidays will be increasingly difficult because of relatively short vacations and increased cost relative to disposable income levels. Amongst these people the Morice is a ready-made opportunity. For those people visiting the Northwest, who come self contained (RVs or camping gear), again the Morice offers a potentially good location for an overnight or multi-night stay. The market link weakness is there is no direct link to increased use of recreation sites and increased income and thus an interest in increased marketing to build increased use. Where a direct link between use and benefits is hard to locate, obtaining commitments to build marketing funds is difficult at best.

Chain Lake Canoeing

The only chain lake canoeing in BC that has a revenue stream is Bowron Lakes. Approximately 4000 people used the 6 – 10 day Bowron Lakes circuit from May through to September in each of the last three years. Each person pays a $60 fee (total revenue of $240,000) plus for many (up to 25%) they also rent a canoe and portage cart ($30,000 in revenue). In the vicinity, there are two lodges plus a provincial campground based on this lake chain. The Powell River Canoe Route (http://www.discoverpowellriver.com/visitors/forestcanoeroute.html) is another route (90 kms) that is beginning to get more use and attention. It is only 5 hours from Vancouver and is useable for a full 3 seasons –

advertised for up to 4 seasons. It does not have a revenue stream attached to it so the financial benefits accrue to those providing services to paddles including canoe and equipment rental operations.

Clearly there is demand for moderate to easy multi-day canoeing experiences even if they are located many hours from significant markets. With Bowron Lakes often sold out, other secondary opportunities will receive more attention.

Hiking – all day and overnights

In the Smithers and Houston areas there is already significant demand and use of trails in to the high country. Good examples of these are Hudson Bay Mountain, the Babine Mountains Park and the Telkwa Range. Currently the only way to build a revenue stream attached to the users of these trails is to provide services including over night accommodation, guiding, and transportation to, and from, the trailheads. The advertised cost of the trips transported and guided by Hungryhill Adventures are $110/person for single days and $275/two day/person is much higher than lots of other similar locations for a two-day trip. Both of these rates are much higher than the $60 - $90/day advertised in the Okanagan or the Kootenays for similar one-day experiences or less than $200 for two-day trips.

At this point the Morice has a regional reputation for backcountry hiking but very limited provincial, national or international reputation for backcountry hiking. The lack of marketing presence dramatically limits the demand for backcountry hiking in the Morice by people from outside the region.

Recommendations to the LRMP Table

Recommendation – Identify the short trails, and potential sites for short trails, adjacent to forestry campsites in the southwest part of the Morice for strict management by all resource users.

Recommendation – Identify the portage route required between Nanika Lake and Kidprice Lake along the Nanika River for strict management of all resource users.

Recommendation – Identify the portage route required along the Nanika River between Kidprice Lake and Morice Lake for strict management of all resource users.

Recommendation – Identify the portage route required along the Twinkle Needles Lakes system for strict management of all resource users.

Recommendation – Identify the main hiking routes to the key hiking areas, e.g. Nadina Mountain, Telkwa Mountain meadows, Owen Hill and Mt. Sweeny for strict management of all resource users.

Recommendation – For strict management of all resource users, identify hiking routes to the key potential hiking areas in the headwaters of Morice Lake, Nanika Lake and Tahtsa areas.

Recommendation – Identify key road accesses for recreation activities, and recommend that they not be de-activated if other resource use activities stop.

Recommendation – Identify and reserve potential high quality sites for lodges adjacent to key canoeing areas and backcountry huts in key backcountry areas similar to the one in the Telkwa Range.

Recommendation – Assist with the identification of mechanisms to flow resources to marketing the Morice for wilderness vehicle camping, chain-lake canoeing and backcountry hiking.

House Boating

Overview

British Columbia boasts one of North America's largest house boating destinations in the Shuswap Region. This is due to the fact that the lake is located within an ideal vacation destination between Vancouver and Calgary on the Trans-Canada Highway, and within short proximity to Kamloops and Kelowna. Shuswap Lake has a tremendous amount of shoreline with secluded, safe mooring, beaches.

Twin Anchors Houseboating, Sushwap, BC

Most importantly, a number of houseboat manufacturers developed in the Shuswap including Twin Anchors and Three Buoys, both implementing creative timeshare and ownership programs for the houseboats that they build and moor in Shuswap Lake.

Building a successful house boating operation should be considered within the same development scope as building a ski resort or golf resort. The investment for the development is similar, as is the customer spending magnitudes, whether that be buying into a timeshare program, or simply booking a rental.

Such a formula for success has been repeated at a few locations in southern BC, but has yet to catch on in central and northern BC. Due to the vastness of the very large lakes in the Morice area coupled with the spectacular landscape, fishing and other outdoor activities, house boating could be a prime attraction for destination visitors to the region.

However, investors seeking the potential for vibrant houseboat rentals require a number of key factors in order to be interested in investing:

- Good weather between the months of June and September is essential, lakes have to be warm enough for swimming and very good weather has to take place for the month of July.
- The lake environment has to have a significant shoreline, with landing areas, preferably beach.
- The departure point from where the houseboat is boarded needs to be a full service marina.
- A significant investment of modern class houseboats needs to be available.
- The resort has to be within close proximity to large urban centers or along major travel routes.

Avid house boaters consider a marina as an important component of their experience, offering a level of comfort with supplies and visitor amenities. Often guided lake tours for small groups become an ancillary opportunity as well.

A houseboat will cost about $200,000. Considering that the house boating season in North America exists May through to September 1, with the prime season from mid July to the beginning of August, business planning, pricing, services and marketing have to be standardized to fit this seasonal operating period. Therefore, an operation in the Morice area would have to prove a profit within a short season.

The potential of house boating is directly linked to locations along the lake where boats could be landed and where self-guided land excursions would be available to visitors. Such landing areas would have to be safe and well marked, perhaps with a picnic area. Maintenance of the landing areas would have to take place along with a training program in order for visitors to pilot the vessels.

Opportunity Analysis

The only community in the Morice Region capable of providing the core services required for a houseboat operation and marina would be Granisle on Babine Lake. It is here that sewage facilities could be maintained. Six average size luxury houseboats at half capacity could mean upwards of 2000 visitor nights. It should be assumed that it would take at least four years to reach that magnitude.

A houseboat rental with a timeshare option would have to be combined with a quality marina development in order to remain competitive within the marketplace. The Houseboat industry has become fine tuned with regards to offering bigger and more luxurious houseboats, which are energy efficient as a response to consumers who have wanted luxury but are also price savvy.

Babine Lake would provide a large enough body of water that would make excursions inviting to visitors. Babine Lake is also a viable lake for house boating as it has access to a sanitary dumping station at Granisle.

House boating would have to be linked to fishing and wildlife viewing which would lend itself to guided houseboat tours of Babine Lake. A houseboat rental business, in conjunction with a marina operation, could be dovetailed with a vacation cabin development. Timesharing could be handled through a property management company offering maintenance services. Other lakes are possible if they have the landing areas, sewage station and marina.

As a destination attraction and getaway timeshare investors should be targeted in Edmonton, Vancouver and Seattle if marketing took place within national Houseboat Rental Publications and through a four-season destination marketing initiative, perhaps in conjunction with the Ski Resort in Smithers. To a lesser degree, retirees in the northern communities would be targeted as well.

Location Analysis

- An assessment of attractions and activities that would be of interest to houseboat users, as well as potential pitfalls which would include travel times, insects and weather conditions as well as the lake environment and potential landing sites.
- A prospectus suitable for attracting a primary investor interested in building a houseboat development, perhaps dovetailing with a vacation cottage development.
- Six houseboats at a cost of upwards of a $200,000 each, along with the costs needed to build a suitable marina operation.
    - Second hand boats from the Shuswap are an option worth examining.
- Landing sites with accurate maps and brochures for self-guided water and land excursions are required.
- A "Captain" training program for visitors since they are piloting their own rented vessels is needed.
- A sani-dump suitable for houseboats and large enough to handle the volume of waste is required for an operation of this type.
- An operations procedure and staff training program and a close examination of liability issues and the new Marine Liability Act are essential.

Market Analysis

House boating can be a destination tool in partnership with tour wholesalers if guided lake tours become part of the operation. Timeshare vacation visitors are often attracted for long-term stays, economic impacts would be similar to a Cottage Country economy. These "Vacation Residents" and their friends often return year after year exploring new experiences, and perhaps retirement options in the area.

The house boating industry in the Sushwap greatly benefits from being located along a major travel route. Marketing of this product occurs in a large population base. Most of this population lives within a few hours travel time of the Sushwap, making it a suitable week-end attraction. A similar type venture established on Babine Lake would face difficulties associated with product marketing. With the exception of a small potion of the local population most of the clientele would have to travel long distances. Marketing of the Babine House Boating Industry would have to be focused towards the destination tourist, those individuals or families who are interested in spending a week or two at one location

Recommendations to the LRMP table

Presently, it is doubtful that Morice could provide the necessary infrastructure for enticing a houseboat developer to the area, given its lack of urban areas within close proximity and short season. However in the long term, retaining Babine Lake as a prime sports fishery, as well as a scenic attraction could capture the interest of recreational property developers, who might provide house boating as a component of a more diversified operation.

Recommendation - Retain a proactive management policy for enhancement of the Babine Lake Sports Fishery.

Recommendation - Manage areas within tourism corridors in order to maintain positive visual impact.

Recommendation - Provide opportunities for public access and landing points (anchorages, and marine campgrounds) along the Babine Lakeshore.

Recommendation - Plan to maintain a public trail system that links lakefront areas with natural and private attractions.

Recommendation - Consider a long-term integrated tourism development strategy along the lakefront that includes Granisle.

Snowmobile Tours and Destination Snowmobiling

Overview

Destination snowmobiling can be defined as an area where visitors can snowmobile within a daytrip time frame or overnight within a weekend touring excursion. Destination snowmobiling can include guiding where snowmobiles are provided within a package price; or visitors are provided with maps for well marked trails and can rent snowmobiles; or self-guided excursions where visitors bring there own snowmobiles with them.

Snowmobiling appeals to people of all ages but most studies reveal that snowmobilers generally ride close to home. Daytrips typically consists of traveling 50 to 120 km (up to an hour and a half) to favourite riding areas and trails. Touring is growing in popularity where visitors spend several nights traveling, shopping, dining and sleeping, snowmobile excursions are mixed in with the travel experience. Generally, visitors travel 200 – 300 km in order to participate in such excursions.

The following are the key ingredients for establishing successful destination snowmobiling:

- Well-maintained trails and infrastructure including patrols and habitat protection.
- Day or warming huts, or overnight hut-to-hut network.
- Closely available visitor services including accommodation.
- Close proximity full service tours, e.g. Revelstoke, Golden.
- Solid branding and marketing initiatives.
- Links to other winter activities including skiing and snowboarding. Links include marketing.
- Buy-in and leadership from the local snowmobile club, tourism business, community groups, and the regional tourism authority.

Snowmobiling in rural areas generally has solid community infrastructure due to the fact that many local residents become avid snowmobilers themselves. They actively organize clubs in order to develop and groom trails; this substantial investment in a snowmobile encourages many to invest time into participating with the development of the sport. In addition, snowmobile dealers encouraging further sales and service become leaders in developing infrastructure. This can make for a positive community-based environment for building a tourism initiative.

Within the Morice region, significant headway has been made to provide area snowmobilers with prime recreational opportunities available around Houston including:

- Telkwa Range
- Grouse Mountain
- Morice Mountain
- Dungate Mountain
- Tableland Mountain
- Rhine and Sibola Ranges

From Smithers and Granisle, further recreational opportunities exist at:

- Dome Mountain
- Cronin Mountain and the Babine Mountain Recreation Area

Any snowmobiling areas within the Morice region can be considered successful due to the efforts of the Houston Snowmobile Club. In addition, excursion links closely exist with the Smithers/Telkwa area where the Smithers Snowmobile Association is the main proponent. The Onion; The Microwave; and The Dome represent the areas best "branded" as regional snowmobiling destinations used by local residents, and tourists visiting friends and family in the area.

Moving into a more diversified tourism strategy would require Morice to attract weekend self-guided visitors from Prince George and Prince Rupert; and multi-day guided or self-guided visitors from Edmonton, Calgary, Vancouver and the northern United States. A key ingredient to any tourism initiative would be the establishment of day-use warming huts, or an overnight hut-to-hut network. These huts are necessary to visitor comfort, and will contribute to adding value to the overall tourism product offering, and to marketing campaigns. Some First Nations groups on the coast are exploring the hut-to-hut concept in association with sea kayak excursions. First Nations in the Morice area would be well suited for a similar type of operation for snowmobilers.

Destination snowmobiling tends to challenge the community with key land-use planning issues with regards to multi-use and habitat issues. Often, designated snowmobiling areas do not tend to mix with backcountry skiing so these two different activities require different use areas. However, both compliment certain summer activities. Snowmobiling in the winter compliments ATV use in the summer while cross-country skiing compliments hiking and mountain biking.

Opportunity Analysis

Having a linked snowmobile trail from Granisle to Houston that would then link to the Babine Mountain Recreation Area would be a positive attraction to touring snowmobilers. Telkwa and/or Smithers could provide the level of accommodation required for self-guided groups seeking the weekend getaway. A further link to Hudson Bay Mountain and Ski Smithers could provide further winter destination marketing opportunities that would mix snowmobiling with downhill and backcountry skiing. It would be important to include warming huts at strategic points.

A variety of options exist for new businesses and diversifying existing businesses:

- The Snowmobile Club operating a tour guiding business by contracting the activity out to a member(s), this might include the management of day-use warming huts or an over-night hut to hut. Such a business would be part-time, and could dovetail as a fundraiser for the Club.
- Developing a trail network with branding and a marketing strategy then packaging activities so that they can be carried as winter product by area accommodators and other tour providers.
- Identifying a specific branded route as a summer area for ATV excursions; then another route for self-propelled such as hiking and biking.

Location Analysis

Regardless of positive growing trends towards more destination snowmobiling, the Morice area will face significant challenges in order to grow a market share large enough to have significant economic impacts. Such challenges are as follows:

- Travel distance is too far from Prince George for day-trip or weekend snowmobilers.
- Other market-ready winter activities are lacking.
- The competition remains very high in the region. The Prince George area has 300km of groomed trails with huts.
- The development of the Smithers Ski Hill is in question, this is a key component to winter product clustering for the region.
- Due to the small population in Morice, it may be difficult to maintain both the volunteer and business capacity required to sustain destination snowmobiling.
- The level of market-readiness as well as risk-management issues would have to be determined, and improved if need be.

While obstacles are apparent, there are certain opportunities to help diversify local tourism business by a careful application of destination snowmobiling as a tool for diversifying existing tourism operations. This would involve scaled down expectations and a long-term development strategy based on what businesses and the community could manage, if successful local tourism operators could increase business volumes during the winter and summer months.

In order to establish destination snowmobiling, the Morice would have to build key partnerships consisting of business and community partnerships. The following actions would have to be implemented:

- A tourism planning process linking the snowmobile club with tourism operators to explore tourism possibilities. This process should also be linked to habitat issues so that safe activity sites can be agreed upon. The process should be done in order to establish roles with regards to development and maintenance issues, partnership needs, benchmarks for success, and financial targets. At the end of the process, if there is buy-in, an action plan should be established.
- Four destination snowmobile sites should be determined from the planning process. Such areas should be linked to tourism operators needs. Issues of trail infrastructure, signage, warming huts and mapping should be included within this stage.
- Build a marketing plan linking local tourism, Tourism BC and the regional tourism authority.

Market Analysis

Current industry trends and market demand is positive for snowmobiling, however highly competitive. There are more than four million snowmobilers in the United States and Canada. Approximately 78% of all snowmobilers, when traveling on a snowmobile trip or vacation, travel with family and friends in groups averaging 5.5 people. Snowmobilers spend, on the average, 7.2 nights per season in a motel/resort while on snowmobile trips. 30% of all snowmobilers travel to other states or provinces to enjoy the sport.

The average snowmobile owner is 41 years old, has an annual household income of $61,600 and uses his/her snowmobile 21 days per year. 90% of snowmobile owners own their own residence, 49% have a college degree, 71% are married, and 42% own more than one snowmobile. Approximately 60% of snowmobilers are men and 40% are women. Surveys show that over 94.5% of snowmobilers consider it a family sport.

Studies reveal that snowmobilers generally ride close to home. On day trips, snowmobilers typically travel 30 to 75 miles to favorite riding areas or on favorite trails. There is a growing interest in touring – spending several nights traveling, shopping, dining and sleeping along the way. However, for overnight trips, distances traveled normally range between 200 and 300 km per day. Surveys show that, on average, snowmobilers taking overnight trips (24% of those surveyed) take 3-5 trips a year, spending 2 nights per trip away from home.

Provincial tourism authorities are now actively promoting snowmobile tourism through such means as the production of snowmobile information guides and trail maps and the establishment of toll free numbers with information on snowmobiling opportunities and conditions.

The ideal snowmobile trail system is designed to meet multiple criteria. For example,

- Safety - It is designed, signed and maintained to specifications, which will eliminate or identify hazards.
- Environment - It is designed to avoid environmentally sensitive areas and built to strict environmental standards.
- Destination - It is designed to go somewhere (to a point of scenic interest or recreation site, to connect nearby towns, etc.).
- Integrated Network - It is designed to be part of a formal, long-distance, integrated network which links towns, countries, states and provinces. A number of jurisdictions are now working to develop international, interstate and inter-provincial systems. It is now possible to ride 70% of North America's snowmobile trails through the continuous interconnections that exist, especially in the eastern half of the continent.

Snowmobilers have historically "paid their own way" for the development and maintenance of snowmobile trail systems. Funding for public snowmobile trail systems, all paid for by the snowmobile user, include:

- Snowmobile registration fees;
- Trail permits
- Volunteer trail construction and maintenance;
- Snowmobile user permits.

Trails developed with snowmobile funds directly benefit other outdoor recreationists. During the non-winter months, many of these trails are used for hiking, horseback riding, bicycling and other trail-based activities. However, propelled and self-propelled users often come into conflict. These two groups should be considered separate within an integrated tourism strategy. Because development of snowmobile trails is compatible with many other trail-based activities, and because snowmobile registration fees and user fees can provide a ready source of trail funds, other recreational organizations as well as business often support snowmobile trail development.

Recommendations to the LRMP Table

Recommendation - Through an integrated planning process, determine with tourism operators, what snowmobile travel corridors they are willing to support within their own product development and marketing strategies.

Recommendation - Determine a long-term strategy for the development and management of such travel routes for motorized winter and summer use. The strategy would need to consider habitat management, retaining the visual environment along with the establishment of day or over-night huts.

Recommendation - Determine future recreational lot developments as well as links outside of the Morice region (Ski Smithers) so those snowmobile routes can be linked to such features.

Recommendation - Utilize the local snowmobile club as a key proponent for management in conjunction with other user groups.

Commercial Recreation Site Development (includes Forest Service Recreation Sites)

Overview:

The group thought that there might be opportunities in operating forest service recreation sites or creating new recreation sites as a commercial venture. Secondary questions of interest to table members include the following. Given that forest service sites are on some of the best sites in the province what would it take to develop them into something someone would be willing to stay and pay for? What would be the benefit, if any, to the local economy to have such a venture(s)? How many could be administered in this way? Which ones would be best suited to do so?

Methodology

In order to consider forestry recreation sites as an option, the implied locational criteria for successful high demand must be determined; fee generating forestry recreational sites must be found; and, operating costs must be ascertained from the Ministry of Forests. With locational criteria and operational expenses in mind, attempt to ascertain if suitable viable sites might be available in the study area. The heaviest used sites in the Morice Forest District are Morice Lake (150)[19], Bear Island (160), Owen Lake (100), Sunset (100), Aspen (80), and Noralee East (70).

In order to consider new potential sites, ascertain site criteria used by major campground franchisor (KOA) and distribution pattern of existing public and private competitors with a view to suggesting potential market demand gaps that might provide new viable opportunities.

Each of these two very different opportunities is considered below as "A) Forestry Sites" and "B) New Facilities".

Opportunity Analysis

Forestry Sites

Recreational demand of sites is highest in close proximity to water. Recreational studies and comparative land values and sales trends consistently confirm the attractiveness of water sites to recreationalists although narrative awareness of table members will satisfy themselves of the need of recreation sites to generally be located on or near water. Some narrative indicators include land values and personal attractiveness of sites with view of water, access to water, or preferably from a personal use aspect, of being located on waterfront property.

Owen Lake FS Rec. Site

BC Ministry of Forests recreational sites are usually located on pristine waterfront locations. In most cases, the ministry developed and institutionalized sites that had been previously identified as highly attractive sites that had been traditionally used by local recreationalists and were sites that deserved to be preserved for public use.

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[19] Peak weekly number of user groups as provided by the Ministry of Forests, Northern Interior Regional Office (2003).

A quick review of data on BC Forestry recreational sites in the Morice Forest District confirms the implied criteria for viable sites.[20]

Market Analysis

Up until two years ago Ministry of Forests had a policy of charging a nominal fee for use of forestry recreation sites. Most sites were not managed, but were operated on a trust system where users were expected to purchase an annual pass in return for unlimited annual use. A small portion of the total network attracted such user demand that operators were required to maintain the facility in healthy conditions. In these few cases, user revenue was collected if visitors hadn't purchased an annual pass prior to visiting the site.

Ministry of Forests has 1268 recreation sites in the province. Of these, 70% had such low user activity that no personnel serviced the sites and the users themselves were left to maintain them. On-site operating revenue was neither collected nor was operating expense experienced. In these cases the cost of collecting revenue greatly exceeded the expense of collecting. Community groups maintained a further 261, or 20% of the total without collecting any revenues. These locations offer some community benefit for local recreationalists who clean and maintain the facilities voluntarily for their personal community use but inadequate transient user demand exists to cover the costs of collecting a user fee, much less cover the true cost of maintaining the sites. Lastly, there is a small group of 'enhanced" forestry recreation sites that sometimes offer adequate user demand to cover the costs of collecting user fees while also necessitating the constant maintenance of facilities. In these cases, contract operators maintained the facilities and collected user fees.

Province wide, up until two years ago 110 of the 1268 in the province, or 8.6% of the total generated adequate user demand to require regular maintenance and user fees were charged. Clearly, there are implied locational criteria that set these 8.6% aside from the remainder. A pristine highly valued site in itself does not indicate it will generate adequate revenues to cover the costs.

Interviews with forestry officers in Smithers did not identify specific formal criteria for applying user fees. However, a review of BC Forestry Ministry data indicates the sites with the highest user demand (and were charged user fees) include sites that are 1) in close proximity to large urban population bases 2) attract high transient tourism demand, and 3) are used by mountain hikers, and campers, some of whom are fishermen, or hunters which creates greatest user pressure in specific months of the year. In the case of some hiking and fishing sites, user demand begins early in the spring and continues through the summer while sites serving fishers and hunters peak late summer and fall.

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[20] Ministry of Forests, Listing of Recreation Sites – August 18,2003: http://www.for.gov.bc.ca/hfp/rec/sites/

The following data is two years old from the period when Ministry of Forests attempted to follow a user-fee policy.

The highest ratio of managed and user fee sites are in Chilliwack (61% of local forestry recreation sites) Squamish (42% of forestry recreation sites) and in South Vancouver Island (36% of forestry recreation sites). The obvious narrative criteria data is that high use is from Vancouverites and Victorians, or tourists attracted to these cities, and that highest use site areas require a demand population of approximately one half million or more per annum within a close proximity of approximately 3 hours travel time for general campers and up to 4 hours travel time for mountain hikers. Hunters from the Mainland will travel over 12 hours to a preferred hunting area and will use a recreation site if one is available in their hunting area, otherwise they use a clearing beside a road.

One area in the north, Ft. St. James forestry area, had 6 of 24 forestry recreational sites collecting user fees (25% of local forestry sites), suggesting adequate user demand to support fee collection costs. However, a local operator who was on a subsidized contract with Ministry of Forests managed these sites. The sites were also in close proximity to a First Nations community that generated most of the use and the operator lived in the community. The facilities were actually being maintained for band use. Actual user-fees did not cover the cost of the contract.

Contract operators collected fees last year ($10/night/group) at three sites in all of Northern BC. This year, due to inability to attract a contract partner, user fees are collected at only two sites in Northern BC. The three sites in the north were: Dawson Creek, Peterson's Beach Fraser Lake and until this year Red Sands, Terrace. No contract operator could be found to partner at Terrace this year due to low contract revenue due to low user-fee revenue.

It is recommended MLRP table members secure confidential data from Ministry of Forests to determine whether any of the local sites could generate adequate revenues to cover real long term costs of maintaining the facilities (e.g., Morice Lake or Bear Island). Based upon comparative analysis of the other sites in the province, this area will be expected to generate minimal revenues and low viability due to inadequate local and transient population base, although a community might be motivated to manage sites as part of their tourism strategy, although it would not be a profitable project. Due to the very transient historical user demand, operation of the low use sites are not in themselves expected to generate adequate community sales to justify an operational subsidy.

New Facilities

Major campground franchisor KOA was the first campground franchise company in the world and has the greatest site viability experience of all competitors. Their principle "Must have criterion" is for their new campgrounds to be situated in communities with a population of at least 150,000, and, be a tourism draw location. This criteria has been tested in Northern BC where a project in Prince George failed a number of years ago and has been closed. It is not recommended that any consideration be given to establishing a new full service campground facility in the study area.

KOA's secondary criteria are useful in considering smaller examples of local competitors, and possibly identifying opportunity gaps for smaller projects. Their secondary criteria require projects to be located within 2 KM of a major inter-highway (interchange of at least two major highways) interchange, and hopefully within sight from the highways. No inter-highway interchanges exist within the study area, and this is a serious detriment to a highly successful campground.

The last criteria for smaller projects are to offer some location advantages, be they highly valued fishing resort sites, or convenience campground locations. Further study or local knowledge may identify high-class fishing resort opportunities in the study area that might attract visitors from outside the area, and attract domestic users from within 15KM of the site, although no suitable sites were identified for this pre-feasibility study.

Convenience campground locations are in part defined by the user patterns of camping travelers. Historical user trends on Highway 16 have transient campers accessing the area from Prince Rupert or Prince George. Currently, majority of travelers frequently stop at major facility communities after between four and seven hours drive time. Compared to regional options, no focal point exists in the study area to adequately draw travelers, in large enough numbers, to support start-up and operational costs of a new facility at this time.

Should the economic projections for the area turn very aggressive in the future, and start-up losses could be contained in a very brief period of 18 to 24 months, there might be an opportunity to develop a new higher-class project than is competitively available and thereby attract a high market share of new travelers as well as draw historical clients from competitor locations. The combination of these two market responses may foster a viable new operation. The kind of economic initiator that would be required to offer aggressive growth could include opening of a new major highway or establishment of a major new high average income employer. Some industrial employers have had this impact, for example insulation manufacturer where high numbers of engineers and chemists dominated payrolls and positively impacted local spin-off revenues.

Conclusion

At this time no opportunity to create new viable campground facilities was identified although local knowledge of a high-class location may foster justification for further study.

Recommendations to LRMP Table

Do not undertake management of Forestry sites, or start new recreation site projects, as a business venture, if profit is the objective.

If the sole objective is protecting and maintaining a local recreational asset, or controlling public liabilities, or as a strategy within a Tourism Plan to enhance length of visitor stays, and it is seen as a widespread local priority, local and provincial governments would have to consider this in their economic development strategies. However, it must be understood that while local businesses will generate increased revenues from gas, food and recreational sales, user fees will not cover the maintenance costs of the asset. There is a possibility, subject to successful negotiations, of securing an operational subsidy from the government, however, it must be pointed out that the fee subsidy scale is so low, private partners can not be attracted to operate some of the high priority locations. No subsidy would be available to cover real administration, legal and negotiation costs, and labour costs would have to be under contract. The subsidy is not adequate to cover hourly labour charges.

Recommendation - Do not undertake management of Forestry sites, or start new recreation site projects, as a business venture, if direct profit is the objective.

Recommendation - If direct profit is not the objective, more so the indirect benefit to other businesses or municipalities is the objective preservation of these sites is required.

Recommendation - Access to FS Recreation Sites should be maintained.

First Nations Cultural Heritage Site Development

Overview

Ksan Heritage

In BC there are approximately 196 Bands with both a significant current population and a growing population. Historically the number of FN's people living in BC was much greater. In BC's Northwest the overall population is falling and the number of FNs members is rising, increasing the percentage of Northwest residents who are of First Nations decent. The significant historical presence is dramatically under represented in BC's tourism industry. For example there are three major First Nations attractions between Hope and Prince Rupert including both routes to Alaska and all three major routes to Alberta. The three attractions are Quaaot Lodge near Chase, Xats'ull Heritage Village near Williams Lake and 'Ksan Village in Hazelton. Given the rising provincial, national and international interest in First Nations people, there is significant under representation of their heritage for visitors see and learn about BC's First Peoples.

The Wet'suwet'en traditional territory includes most of the area within the Morice LRMP. There are no permanently occupied Wet'suwet'en communities within the boundaries of the LRMP but there are four communities adjacent to the planning area and 17 reserves inside the planning area.

Highway 16 is the main highway (and only highway) between the major communities in the Northwest. It is the main visitor route for people travelling by road to Alaska via Highway 37, to Prince Rupert and Queen Charlottes, to Vancouver Island via ferry along the inside passage and to Alaska via the Alaskan ferry system.

Opportunity Analysis

The Pacific Northwest is well known internationally for its large pre-contact First Nations communities. A key attraction in the area is 'Ksan Museum and associated arts centre in Hazelton. In 2000 'Ksan pulled 18,100 people off the highway (paying customers – more come and visit the grounds but don't pay the fee as it is on the honour system) which is well off Highway 16. It represented a little less than 5% of the summer highway traffic along Highway 16. The number of visitors was down approximately 15% from 1998 and 1999. It is important to recognize that 'Ksan is more than three decades old and has been on the list of 'must see' for visitors to the Northwest for a long time. The Wet'suwet'en community of Moricetown has significant plans to develop a visitor observation site at Moricetown canyon which is located right beside Highway 16. The Gitanyow at Kitwancool have recently developed a visitor centre next to their famous poles in the centre of the village northwest of Kitwanga.

With the ageing population in North America, combined with their increased affluence and an interest in travel, there will continue to be a demand for cultural tourism in the Northwest. Clearly there is already a substantial demonstrated interest in connecting with the Northwest First Nations culture by visitors and residents alike.

Location Analysis

Nanika Kidprice

The Wet'suwet'en have identified a series of sites south of Houston for eco-tourism opportunities (Morice LRMP Base Case Report: Socio-economic Analysis – Page 75). Some of these identified areas are currently used by many residents, and visitors e.g. Morice Forestry Campsite sees 150 parties per week in July and August each year and the Nanika Kidprice Canoe Route is popular as well. The areas currently in use have demonstrated appeal to those interested in front and back country activities.

Areas of cultural significance along the Bulkley River that are close to Houston, present the highest opportunity for a cultural demonstration site which is economically viable. A site with highway or near highway frontage close to Houston would create a site where a visitor centre and active demonstration area could be established that would reflect the activities of First Nations in this sub-region of BC.

Market Analysis

The demonstrated ability for 'Ksan to attract about 20,000 visitors annually combined with the visitor demand for Northwest First Nations experiences and information make establishing sites including the one planned for Moricetown Canyon potentially viable. The large demand is for roadside, or near roadside, active interpretative sites where visitors can interact with life sized displays and current First Nations people. The economic viability of these sites depends heavily on the owners ability to attract and use funding to establish and renew the physical structures while relying on gate receipts and gift shop sales for annual operating costs. The financial success of the Revelstoke Railroad Museum provides a good model to follow. Other out of province examples are: Head-Smashed-In Buffalo Jump Interpretive Centre near Ft. McLeod in Southern Alberta and Wanuskewin Heritage Park on the outskirts of Saskatoon, Sasketchewan.

To establish a facility like this in the Morice LRMP near Houston would be a major undertaking and process and systems have already been developed to make the process as easy as possible.

Recommendations to the LRMP Table

To advance the development of First Nations Cultural Heritage Sites the Morice LRMP needs to consider the following recommendations:

Recommendation - Identify the sites near the Bulkley River along Highway 16 near Houston or along Babine Lake that are potential sites for a First Nations Cultural Heritage Interpretive Centre.

Recommendation - Identify the areas around the site that require specific resource management to maximize the quality of the site.

Guided Tours of Historic Mines and Prospecting Tours

Overview

The Morice Land and Resource Management Planning area comprises a region running northeast/southwest of Houston BC. The region is characterized by a relatively low relief of the interior plateau and referred to geologically as being in the Stikinia/Quesnellia Terranes. Although there is moderate topography, the region has been challenging for mineral explorationists because of a blanket of regional post Pleistocene glacial overburden. As a result, many of the *showings* of the region have been discovered by more advanced methods beyond the traditional prospecting, associated with more "historical" discoveries.

British Columbia is rich in mining history, which is considered an important part of the Provinces' frontier. For decades the mining experience has been built into the tourism framework of both British Columbia and the Yukon through three different tourism development and promotion strategies:

- **The Heritage Mining Town** – Which is a reconstructed mining town with an almost theme park quality i.e.: Barkerville and Dawson City.
- **The Authentic Prospecting and Ghost Town Experience** –Involves visiting claim sites and ghost towns at their present point of deterioration, and to perhaps gold pan and explore as early prospectors did.
- **Modern Era Mining** – Exploring existing mining operations as a learning experience.

Experiences are educational and can be either guided tours or self-guided. While one is a re-enactment experience and very theatrical, another remains a nature-based experience almost archaeological. The third is an experience based on learning about an industry. The construction and ongoing expansion of Barkerville between 1968-78 was probably the peak of the heritage mine tour experience coinciding with parent's eager to present young baby-boomers with an experiential school vacation. Since the 1990's British Columbia's Cariboo Gold Rush has lost its position as a visitor destinations theme, to the Yukon's Klondike Gold Rush.

The Yukon has created a significant infrastructure around the Klondike Gold Rush theme, helped largely by the cruise ship traffic docking in Skagway and trips being organized by companies like Holland America into Whitehorse and Dawson City. In British Columbia, Barkerville is being sold to the private sector and is considered in dire straights financially.

Given current regulation not only in BC but also in all of Canada, there will never be another "ghost town" as any mine must remove all evidence of infrastructure at the end of the mines life. Beyond removing buildings, slopes must be re-contoured, waste piles buried and mine openings closed. At many modern reclaimed sites, even finding mineral specimens for rockhounds is difficult.

Initial mineral discoveries in the Morice region date back to around 1910 to 1925. The showings found were typically small but high grade. The initial reserves were exhausted quickly with little development done until the 1960's. Low grade "porphyry style" copper mineralization became an economic target, facilitated by advances in high tonnage/low grade mining technologies.

Most sites, depending on climate, prior to about 1950, have limited tourist value. Although many global travelers are no longer looking for a sanitized heritage theme park setting in their travel experience, most of the older sites in their reclaimed state are disappointing to visitors as their perception of old mines includes buildings and some artefacts.

Sites, whose history dates from the 1960s to present, generally have two fates. If the property has had a lapse of ownership, government regulations have required the last operator to decommission the mine by removing all infrastructure and closing mine openings. If the mine has been continuously owned, mining companies are reluctant to allow visitors on site for reasons of liability, lack of staff and/or a simple unwillingness to deal with tourists.

For the most part, heritage mining sites and prospecting tours in the Morice area would have to fit within a nature-based travel experience; would have to be authentic within an educational and archaeological framework; have a special emphasis on recent mining exploration and then dovetailed with mineral, rock and gem hunting.

Opportunity Analysis

The Morice region has limited "historical" mining heritage. This area was a region of prospecting shortly after the turn of the century but may contain little evidence of that era. The temperate forest climate of the region is not favourable for preserving early mining infrastructure. Any non-geological evidence from the 1910s would be difficult to find. The attraction to tourists of this remaining infrastructure would be limited.

However, significant potential may exist for mining tours of past producers in the area as a *new generation of mining and discovery.* A significant gap exists in BC of recent exploration and mining methods from BC extensive mid-century industry efforts. From the 1960's to present, little public exposure has been given to the many success stories in exploration and mining. Most of the remaining operating metal mines today in BC source their discovery and technical feasibility to discoveries of the generation of exploration typical of the Morice region.

Unlike the mining heritage of the turn of the century preserved largely by government intervention, BC has and is undergoing a purge of our post-mid-century mining history. Through mandates of law by government authorities (i.e. burning of the Hedley stamp mill in 1972, attempted demolition of the 1930s era Mascot buildings above the town, partial demolition of Ocean Falls town site in the early 1980s), there may be no preservation of mid/late century mining heritage.

Depending on the condition and extent of the buildings and development of the sites in the Morice region, there may be tremendous potential to preserve the 1960 - 1990s era mining technology, exploration evidence and worker lifestyle. Not to say that the sites need to be tinselled up for mass tourism, but to leave the sites accessible for a select profile of adventure/nature-based travelers seeking to learn historical details of authentic Canadian culture.

No abandoned site in BC has an intact mill preserving the complete processing of raw ore to concentrate. And the few operating mines left in the province have limited resources or incentive to open their doors to the public. A number of abandoned mines with plants are gradually selling off the equipment to a glutted global market or selling the material for scrap or simply burning and burying all materials. There is interest in the machinery, buildings, processes and infrastructure of post-1950s mining. Turn of the century sites contain little raw evidence of the era as natural evolution of degradation or scavenging generally occurs.

Open pit mines have the best potential for finding rock and mineral specimens. Besides the impressive aesthetic of standing in a *big man-made hole*, fresh rock exposures tell the tale of mineralizing processes and specimens abound. Generally, water standing in the pit is crystal clear and very photogenic. The pits themselves are not subject to reclamation as the task is simply too enormous.

Potential to provide an experience of modern exploration history could be conducted in the region for a niche-tourism market. BC Geological Survey geologists have been active in the area for over a decade. Prospecting, mapping and sampling activities would give an opportunity for tourists to understand modern exploration methodologies. Such learning tours could include overnight stays at a number of camps equipped as relatively modern exploration camps complete with wall tents, woodstoves, cook tent, radiotel communications. A number of exploration companies no long active in BC have surplus equipment to donate to such a program.

Location Analysis

The ultimate fate of the past producers in the Morice Land and Resource Management Planning area will be the eradication of any evidence of its mining history. Records show that ownership of a number of the sites as being major mining companies. Provincial authorities with the perception that corporations are capable of full compliance will strictly enforce the responsibility mandated by law for reclaiming the sites.

Any buildings from the 1960's will in the future be as historically significant as have been sites currently under preservation such as Barkerville, the Le Roi Mine in Rossland and Dawson City in the Yukon. The benefit such sites have had is that a population lived at the towns and maintained the structures as residences. The sites in the Morice region are isolated and supported only by the resources of the current tenure or permit holders. There are no community or resident champions seeing themselves as responsible for preserving these sites.

The over-riding issues when accessing mine sites is liability and safety. Despite no litigation risk to the government, it has been unwilling to let operators assume the risk of their own activities with their clients. Mining companies are also aware of government regulation driven by perceived liability issues and are bound by strict public access parameters. Governments and mining companies insisting on, or forced to have *Third-*

party Liability Insurance coupled with the run-from-risk position in all sectors of the insurance industry makes the potential for public visitation unlikely to many sites.

The Morice area has a vast network of back roads built and maintained by forestry companies based in Houston, Telkwa and Smithers. Non-maintained roads are quickly reclaimed by nature as many of the low flatlands are subject to flooding and rapid encroachment of alder and other brush into the roadways. There is an extensive waterway network, bridges and culverts, if not removed via the decommissioning of the roads as demanded by the Ministry of Forests, are subject to rapid deterioration.

Public entry into abandoned underground openings is illegal in BC, based on some very sound logic. To restore an underground *drift* to a level deemed, as safe for the public is an extensive and costly process. Sites are under the same building and safety regulations as any public place. The conditions for public access reduce the site to an accessible level based on the least mobile visitor (ramps, railings, walkways, etc).

Guided tours onto the properties by qualified; non-company staff requires a progressive attitude by both the government and mining companies. Perceived risk versus actual risk in adventure/nature-based tourism routinely has irreconcilable differences within interpretation, as to how corporations and government views "adventure", often the larger the mining company, the more difficult it is to gain access. Independently owned properties and small companies are seldom problematic.

In this cursory review of the region with information sourced from Minfile records belonging to the BC Geological Survey, a number of sites may have attractive potential for mining and prospecting tours.

Huckleberry Mine: a current modern production facility. Open pit operations are always popular and far less problematic than public access to underground operations. Operating mill tours are currently rare in the province. Tours must be designed to minimize interference with the operation of staff time. Current exploration efforts may include a separate camp that could be developed as a showcase to travelers exposing them to the lifestyle of modern explorationists.

Equity Silver: Gold has always been the draw for BC historical mining tours. Visitors are often disappointed to see that gold is seldom, if ever, visible in true gold ores. Other minerals associated with other metals can be far more spectacular. The ores of the Equity Silver Camp are hosted in visually stunning pyrite (fool's gold), chalcopyrite (copper), pyrrhotite (a magnetic iron mineral) and galena (lead). As these minerals occur both with and without economical grades of metal, specimens can be found in waste piles and are popular souvenirs at no cost. Equity Silver is in close proximity to Houston with an excellent road.

Granisle/Bell Copper: Distance is an issue as the route to these sites is over 140 kilometres with most of it gravel. Significant discoveries, these mines demonstrate the modern era of discovery and mining. The picturesque setting on Babine Lake gives great potential for overnight trips. These trips may be coordinated with a number of resorts on Babine Lake and could include boat access to the sites.

Topley Richfield: Potential prospecting history potential as this mine's discovery dates back to the 1920s. Reasonably close to Houston, this site may qualify for self-guided driving tours.

There are a number of additional heritage mine sites in the Morice area that have good interpretive value which can be combined with a nature-based experience, however they would need a closer examination with regards to site issues and access:

- Silver Queen Mine at Owen Lake is an underground mine.
- The Dome Mine is near timberline and has an interesting old trail leading to the site and has strong interpretive value.
- There is also a number of old exploration trails in the southern part of the region including an old testing site with buildings in the Sibola Mountains.

There are generally local people in mining communities with enough expertise both to interpret the site to a reasonable level as well as to add local colour. Past employees are a wealth of accurate and interesting knowledge. However, to expect significant employment from these tours would be unrealistic. To be able to be called upon when needed is disrupting to any other employment they may have. Despite this, potential as a sideline occupation would require the person to be freed of a myriad of other government regulation required of this type of business. The current requirements for someone to do tours part-time are the same as full-time protocols, from Motor Carrier Commission; the Mines Act; liability insurance; and Land Use permitting. The individual is best left under the category of "consultant" in order to minimize the web of bureaucracy.

Market Analysis

Guided Tours of Historic Mines and Prospecting Tours can be considered a cultural, adventure and nature-based tourism. Ultimately, within these categories it can be considered a form of *"learning vacation"*. In 2001 communiqué, the Banff Centre described learning travel as one of the fastest growing niche markets in the world and cited a 13% growth rate in Canada last year, twice the growth rate of world-wide tourism.

Culture and natural habitat remain primary targets within any learning vacation. Experiencing an authentic Mining Exploration Camp would have within it the following interest drivers:

- Opportunity to learn about regional history, culture and industry.
- Exposure to natural habitat and scenery, including exposed rock formations and deposits.
- Affects of human interaction with habitat including negative impacts.
- How nature reclaims mining activity, or doesn't, including the formation of riparian zones.

Learning Vacations are also called learning travel programs, study tours, educational holidays and travel study programs. People who are typically well educated, financially secure adults with a curiosity about the world often use these terms interchangeably. They are well-informed, articulate consumers who seek, demand and are willing to pay for high quality, unique, authentic educational travel opportunities. Many of these people are associated with affinity groups, such as alumni organizations, "friends of" societies and special interest groups. Often individuals purchase their learning vacation from an affinity group to which they belong, which might use it not only to provide an educational service to members but also to raise money for their institution.

Developing a regional theme around "Mining Exploration" may have links to business travel, and the promotion of travel to the existing Exploration Sector which is rich in associations and corporate partnerships. Such a theme would also have to be clustered with other experiences in Northwestern BC so that an 8-14 Day guided or self-guided learning itinerary could be developed.

Recommendations to the LRMP Table

Recommendation - Consider mining tour sites that consider as part of an integrated tourism development strategy.

Recommendation - Plan for public access, easements and tour sites.

Recommendation - Plan for a public trail system that links with natural and private attractions, so that a cluster of activities can take place.

Tour Package Marketer

Overview

Tour Packaging can be described as the act of assembling a variety of travel experiences, which might include a visitor's flight to a destination combined with a tour experience and accommodation all within a single price. Packaged tours are designed for a variety of markets, within a vast number of price ranges and experiences. Such tours are either targeted to the wholesale travel trade, or direct to consumers.

The role of the Tour Package Marketer in this instance would be one of Tour Design which would involve assembling a series of tourism partners that would include tour guide companies and accommodators who would provide wholesale prices based on popular attractions and experiences that would then be linked to a specific market.

Each designed tour would include a specific *Itinerary* with partnership responsibilities all under a single price with dates of availability. The design process would include photographs and other marketing tools with promotional language for the tour, ready for market.

The Tour Package Marketer would then assemble a plan or approach so that a specific tour or group of tours could then be linked to the wholesale travel trade. Wholesalers work with travel agencies and will often embellish such tours by making them a component of a larger tour of BC, Canada and even North America, and perhaps add airfare to a point of arrival and departure such as Vancouver.

Presently, Tour Design for the Wholesale Trade is in its infancy in British Columbia and provides opportunities for business and communities to diversify tourism efforts; however significant infrastructure is needed with regards to market-readiness and tourism product development.

Opportunity Analysis

The Morice Region has within it natural attractions that would be of interest to the wholesale travel trade including wildlife viewing; the Sockeye Salmon Run; scenic excursions by foot or boat; as well as hunting and fishing. Traditionally, tour packaging has been done by individual business operators with the assistance of the Northern BC Tourism Region (NBCTR), which could then market those packages to wholesalers at Travel Trade Shows such as Rendezvous Canada or Canada West Marketplace; and through a variety of marketing publications targeted to wholesalers.

However, gaps exist when it comes to the logistics wholesalers require in order to carry a product. Overseas companies often look for a company or individually locally to ensure that itineraries and tour package partnerships are in place upon the arrival of the tour group. This position is often not available to them, preventing many companies from utilizing an area such as Morice. This gap exists within many areas of BC due to the fact that the volume of wholesale bookings is not great enough to sustain a Tour Packager business or paid position

A compromise is to build such a responsibility into the business plan of an existing accommodator that can be considered market-ready. If an independent Tour Designer were hired to assemble a number of packages with combined activities, those packages could then be managed by the accommodator, which could then be considered a contact-point for the wholesale travel trade. Such an accommodator could then sub-contract to a variety of tour providers such as fishing or hiking guides, which would then embellish the tour experience for the wholesaler.

Alternatively, if a Travel Agency were to locate in the Morice area, they could supplement their outbound sales with an in-bound sales strategy charging a fee for service for designing tours, or under a sales commission formula. This opportunity for local travel agencies represents a fairly new idea and would require business planning and research on their part.

Location Analysis

Requirements for such and opportunity are:

- An assessment of attractions and activities that would appeal to the wholesale travel trade, as opposed to the retail travel trade.
- Determine a product development strategy that is designed to improve physical infrastructure that visitors require.
- Assess the stage of market-readiness tourism operators are presently in, and whether they have the capacity to deliver rates and services to wholesalers.
- Determine thematic image for the Morice Area that can send a clear and consistent marketing message that sets it apart from other product offerings.
- Employ a Tour Design Consultant that would make recommendation as to what wholesale products could be offered along with itinerary development.

Marketing to the wholesale travel trade differs from marketing tour packages to the retail trade; presently the NBCTR will market self-guided itineraries where visitors will pay for services and accommodation directly. However, group travel may require that visitors pay for a variety to tours and services within a single transaction. While accommodators can legally handle a multi-experience transaction, any other entity would have to be a Licensed Travel Agency in British Columbia.

It is important to consider that once a tour is designed and launched it can take up to three years visitor traffic is realized, due to marketing lead times and market penetration.

Market Analysis

Determining market potential for travel packaging would have a more accurate and positive forecast within a region already branded as a destination. Morice like all of Northwest BC is largely underdeveloped when it comes to tourism with the entire northwest representing 5% of total tourism expenditures in the province. At best, a visitor most interested in small group travel within a tour package could be characterized as a non-resident and likely a long-haul visitor from eastern Canada, the US or overseas. However, such visitors may still arrive as *fully independent travelers* (FIT's) in a rented motorhome from Calgary or Vancouver.

According to the most recent Visitors Study of Northwestern BC, produced by Tourism BC, of Non-Residents traveling extensively within Northwestern BC, 67% traveled primarily in the Fraser Fort George area, while 38% traveled in the Bulkley Nechako, which includes Smithers and Houston.

In North Western BC, Long Haul/Overseas leisure travelers cited general sightseeing (39%) as their main reason for travel, followed closely by visiting friends and relatives (30%), while 16% sited outdoor/wilderness activities as the reason.

Non-resident Visitors to the Northwest were interested in a variety of activities, 25% visited art galleries/museums/exhibits; 16% did sightseeing in a city or town; 15% did freshwater fishing.

Presently, some informal packaging takes place in the Bulkley Nechako where fishing or hunting guides will combine with an accommodator to provide a single price to the marketplace, and while expenditures will be gathered for statistical purposes, details of market approach and logistics would be considered market intelligence by those companies. For the most part, packages could be offered to higher-end clientele through such existing venues with economic increases forecast if further marketing and target marketing were established along with diversifying into areas where new trends are surfacing.

Alberta Tourism offers a very recent description on the key demographic shifts expected to affect the tourism industry. The following represents points that will affect packaged tours:

- For the next 20 years the residents of developed nations aged 55-75 will increase substantially. These individuals will have the time, the discretionary income and the desire to travel.
- North American markets are aging, as the baby boomers mature. This is creating a new set of vacation needs and experiences, and pricing structures to match a market that is healthier, has increased disposable income, and is retiring earlier.
- The baby boomers market will also contribute to the growth of the learning vacation market. This niche product attracts the highly educated, well-traveled baby boomers.

Consumer Attitude Shifts

- The **"Getaway" Market**. As a result of a time-pressured society increasingly seeking relief when it is possible, more frequent, shorter vacations (break-a-tions) are the result. An increase in "cross-over" trips, combining business and pleasure are evident. While the pattern has been to shorter distance travel, recent trends indicate that people will travel long distances on short breaks that pamper or represent a unique experience.
- Travelers everywhere are seeking out unique and diverse experiences that are authentic to the place they are visiting.
- Increasing acceptance of the value of other cultures will greatly broaden the range of facilities, events and attractions of potential interest to tourists.
- There is less large group travel. Smaller groups and fully independent travel represent markets that are harder to identify, develop products to support, and market to. There is an increase in specialized or niche markets that want specific products and experiences. This is changing the development focus from large resorts and hotel properties, to more intimate facilities and services such as lodges, country inns, bed and breakfasts, and small all-suites hotels. Tour products are becoming more flexible, less structured and customizable.

- A growing area of tourism development in many destinations will be organized travel that protects tourists from crime, health and security threats.
- An increased emphasis on special interest tourism - such as cultural, educational and professional development travel - may greatly strengthen and enrich the meaning of the travel experience.
- An increased emphasis on "human relationships" may encourage new forms of tourism in which contact between hosts and guests is less superficial. People are becoming as important as places, and the collecting of interactive, novel experiences versus site visits or things is growing in interest.

Recommendations for the LRMP

Presently, it is doubtful that Morice could sustain a resident Tour Packager, however business opportunities exist for Tour Packing to be developed within the Tourism Sector. It remains important that a long-term strategy exists that would retain the natural attractions in the region, given the long-term lead times that the wholesale market requires.

Recommendation - An inventory of key physical and event features needs to be implemented.

Recommendation - Retain a proactive management policy of the Sports Fishery in the Morice.

Recommendation - Carefully manage and maintain riparian zones.

Recommendation - Manage areas within tourism corridors in order to maintain positive visual impact.

Recommendation - Plan, develop and maintain public access to the landbase.

Recommendation - Plan, develop and maintain a public trail system that links lakefront areas with natural and private attractions.

Non-Timber Forest Products

Introduction

Non-timber forest products are defined as botanical products of the forest that are not used for saw logs or pulpwood. Botanical forest products include edible products, craft materials and medicines. The promotion or orderly, sustainable development of non-forest products is a means of supporting self-reliant and stable rural communities within the Morice area.

Sector Development Strategy

The Morice area has a diversity of ecosystems on which to build on a number of opportunities. Many locals appear to have detailed knowledge of the variety of uses for non-timber forest products. First Nations individuals in the area are at the top of this list.

One of the top priorities in establishing an organized sector is to first collect information on the many uses of local flora and fauna. A group or agency should be established that coordinates the development of this economic sector.

Next, an inventory of these species is required. Combined with research on the harvestability and sustainability of these species, groups interested in using them for financial gain will have the information they need to develop a business. Obviously, this presupposes that there is enough supply of a particular species to make a venture viable.

Through the LRMP, management direction can be established that ensures the economic viability of various non-timber forest products. Without this management direction many potential opportunities may be lost due to industrial use of the forests.

Identified Opportunities

Table 21 lists the Economic Development action Plan Working Group's non-timber forest products opportunities and their respective rankings.

Table 21. Identified Non-Timber Forest Products Opportunities and Rankings

Opportunities	Ranking
Wild berry production	19
Mushroom harvesting	19
Cultural and traditional use products	20
Botanical Forest Products for the Nutraceutical and Medicinal Herb Market	22
Production of Willow furniture	20
Essential oils	19
Wild flower floral production	19
Birch syrup production	18

Three priority opportunities were selected for analysis in the non-timber forest products sector. The three opportunities are; cultural and traditional use products, manage species for pharmaceutical development and production of willow furniture. Due to the large number of cultural and traditional uses on the land base, berry picking, one of the most prominent uses was selected to represent this form of opportunity. The following sections explore the criteria and conditions for developing these opportunities.

The Economic Development Working Group felt that the remaining opportunities had merit but recognized the technical limitation of analysing these opportunities at the expense opportunities in other sectors.

For further information on these and other economic development opportunities interested individuals are asked to review the Ministry of Sustainable Resource Management, Building Blocks. Information on these Building Blocks can be obtained online at http://srmwww.gov.bc.ca/rmd/ecdev/analysis/building_blocks.htm .

Development of a Wild Berry Business (Cultural and Traditional Use Non-Timber Forest Products)

Overview

The Morice TSA LRMP recommended exploring market opportunities for cultural and traditional use products within the spectrum of non-timber forest products. This represents a very diverse spectrum of products, which cannot be addressed in an opportunity analysis as brief as this. In order to provide some practical information in this area of interest, focus has been placed on one of the most accessible and perhaps marketable business sub-sectors of the non-timber forest product group, namely wild berry products.

Opportunity Analysis

The wild berry market, like the larger organic berry market, is small compared to the conventionally cultivated berry market, but it is growing every year as the general consumer becomes more health-conscious. Product lines in the sector range from fresh and frozen berries to processed berry products, such as preserves, syrups, fruit leather etc. Direct (wild berry) competition in this sector is generally localized but indirect competition from similar products such as organic and conventionally cultivated berry and tender-fruit products is significant.

The wild berry business (raw or processed) is a suitable business opportunity for the Morice TSA. The supply of wild huckleberries and saskatoon berries is significant and easily accessible. The First Nations of the area have a long history of berry collection and therefore would likely have affinity with the collection, if not, the processing of the berry products. The major natural constraint to this opportunity is the management of the resource, which is unregulated but is harvested by casual pickers and affected by forest practices in the area.

The market for wild huckleberries and saskatoon berries is local and external. Local tourist traffic and resident consumers can provide a small seasonal for fresh, frozen or process berries. However, a larger demand exists in the metropolitan centers to the south. Lack of affordable refrigerated shipping options will likely restrict marketing of berry products to processed products. To gain a market share in the external market, an entrepreneur(s) will need to focus on a particular niche (specific product or specific demographic). One niche for an aboriginal enterprise may be through gift stores that market First Nation or cultural products at historical sites in western Canada. Another niche may be through specialty or natural food stores.

Location Analysis

There is a variety of wild berries in the Morice TSA including: huckleberries, blueberries, soapberries, high bush cranberries, raspberries, thimbleberries, strawberries, saskatoon's, bunchberries, Oregon grape and kinickinick. By far the most marketable and abundant types of berries in the region are the black huckleberry and the saskatoon berry. Although, no inventory has been undertaken of either the huckleberry or the saskatoon, the blackberry is said to grow primarily in the wetter (western), mid to high elevations of the TSA and the saskatoon primarily in the eastern drier sections of the TSA. Newly burned or logged sites are particularly abundant with these berries but they also routinely grow on the side of roads.

There are no regulatory constraints to harvesting either huckleberries or saskatoon berries on Crown land, which allows for almost unlimited access. At the same time, there is no protection of prime picking sites. There are a number of non-commercial pickers that harvest each year for their own use. First Nations, in particular, are well known consumers of saskatoon's, blackberries and soapberries. Generally, competition for picking sites is most intense nearest to town sites and highways. There is also limited competition with bears and birds for berries. Overall, however, there appears to be an abundance of the berries in the TSA, especially of saskatoons.

Other uses of the land base such as forestry, mining and hunting do not seem to conflict or compete for the berry resources. In fact, logging practices that open the canopy usually assure that there are plots for new crops of the berries.

The major constraint to berry harvesting is weather. If the weather is unusually dry or wet, the berry harvest is likely to be modest.

The proximity to market is a major element of marketing berries, especially fresh or frozen berries. Both saskatoons and huckleberries require cooling immediately after harvest, in order to avoid spoiling. Hence, if the market is distant from the harvesting site, the risk of spoilage is high.

Production/Management Constraints

One of the benefits of the wild berry business is that there is no berry management cost involved prior to harvesting berries each year. Mother Nature does all the work. On the other hand, the lack of crop management also means a more unpredictable supply of berries and potentially greater access costs (time spent looking for and traveling to berry patches). It also means that common berry patches will experience competition from other berry pickers.

The seasonal nature of the business also means that supply of fresh berries is only available once a year (July to September).

There is little infrastructure and skill involved in the fresh berry business, other than transportation, refrigeration and nimble hands.

The frozen berry business requires additional freezing equipment (freezers or flash freezers), packaging equipment.

The processed berry business, on the other hand, can require considerable infrastructure and skill depending upon the type of processed berry product. Hygiene is a particular concern in processing and requires government approved kitchen facilities and processing methods.

There may exist in the Morice TSA expertise to produce a number of common processed berry products (syrups, jams and jellies). However, if a local entrepreneur wishes to export his/her processed product outside the area, the product will have to be finished to a very high standard. If that expertise is not available locally, it may be necessary to gain training, bring in an outside partner or a consultant to assist in product development. One example might include linking up with a chef from the area or from a notable restaurant or culinary school in Vancouver to craft a unique product.

In addition to the berry product itself, packaging is very important. In addition to protecting the product, packaging gives a sense of image and quality and is therefore important in promoting the product. Many packaging materials and machines can be purchased in the market (jars, stickers, shrink wrap material etc.). To create a unique image, references to the local environment or culture (i.e. First Nation) might be highlighted on the packaging. For example, historically significant pictures might be added to logos, native or heritage boxes of wood might encase the product or the package may take the shape of heritage item such as a mask or a canoe.

Shipping Analysis

Refrigerated shipping from towns in the Morice TSA south to Vancouver is not available on a regular basis unless the volume or the price is high. Typically, refrigerated shipping is only available one-way from Vancouver or Prince George into the region. Back hauling south is done but usually with non-perishable items (i.e. lumber) and the refrigeration turned off. This creates a serious restriction to marketing fresh and frozen berries from the area.

Shipping of non-refrigerated products is less expensive and is usually done by truck either via Canada Post, courier or freight. Canada Post is usually the least expensive means of transporting within Canada. Large volume products must go by freight but this shouldn't be a concern with processed berry products. The key concern with shipping from the Morice area will be breakage of fragile items such as jars and bottles. This concern can only be addressed through proper packaging.

Market Analysis

Market Segments

There is very little information about the *wild* berry market in North America but there are close enough similarities to the cultivated berry market such that certain analogies can be made.

The market for huckleberries is considerably larger than for saskatoon berries, which is due to the wide spread exposure of the North American market to huckleberries. Saskatoon berries are known and commonly used on the prairies but relatively unknown and used outside of this area.

The general market segments for berries include fresh, frozen and processed. The fresh berry market generally caters to u-pick, roadside sales, farmers' markets, local grocery stores and berry processors. It is generally confined to a small seasonal market during picking season (end of July to September).

The frozen berry market is largely restricted to supplying grocery stores and processors. Much of BC berries are shipped to eastern Canada and US and are bought year round.

The processed berry market segment is perhaps the largest and most diverse market. Products in this category are numerous and growing. They include but are not limited to:

- Jams & jellies
- Juice
- Wine
- Soaps
- Sauces and Chutneys
- Fruit leather
- Incense
- Flavoured honey
- Syrups
- Fruit butter
- Chocolates
- Mustards
- Dried berries
- Berry Vinegars
- Candy
- Relishes

Jams and jellies are perhaps the most ubiquitous processed berry product in the market.

Demand

The demand for wild berries is not well documented but it is affiliated with the organic fruit market, which is a small but growing niche in North America. Organic fruit constituted approximately 1% of grocery sales in 2001 (or US $11 billion) and has grown an average 22% annually since 1997. This growth rate is largely due to the growing public consciousness regarding the effect of pesticides, herbicides and genetically modified foods on their health. This market is expected to continue to grow as the boomer generation ages and becomes even more health conscious.

Demand for Morice TSA wild berries can be divided into local and external markets. Local markets, including the Houston, Smithers, Granisle, Burns Lake and Francois Lake markets can provide a flexible market for fresh, frozen and processed berries. However, given that there no more than 15,000 people in these towns and that many people harvest there own berries and process them, sales potential is limited. Tourist sales via road side marketing, farmers markets and gift stores can add additional demand for the product but this will largely be seasonal.

External markets in larger centers could be a profitable source for demand for wild berries from Morice TSA but this is likely to be in the processed form, since refrigerated shipping is irregular and the costs are prohibitively expensive.

The population along highway 16 between Prince Rupert and Prince George is comprised of approximately 135,000 people and the market in this area is relatively uncompetitive. However, it very dispersed and comprised largely of a low to mid price group of buyers.

Further south the major cities in BC accommodate approximately 2.7 million people, with a larger number of higher-end buyers, however this market is considerably more competitive, with a vast variety of wild, organic and conventional berry and fruit products.

The demand for specialty and gourmet food products (high quality or high end) occupy about 10% of the grocery store sales in North America and are growing at almost 7% a year. Total sales in this niche sector in North America constitute over $30 billion per year.

Capers Community Markets, Choices Market, Justin's Natural Foods and Meinhardt's Fine Foods would be appropriate locations for further market research into specialty and natural food opportunities in Vancouver.

Prices

The pricing of wild berry products vary depending on the type of berry, the degree of processing and the location. Fresh or frozen huckleberries are generally more expensive than saskatoon berries but processed berry products appear to be similar in price (Table 22).

Table 22. Price Comparison of Wild Huckleberry and Wild Saskatoons

	Wild Huckleberry /lb (Vancouver)	**Wild Saskatoon ($/lb) (Vancouver)**
Fresh	CDN $8.00 - 10.00/lb	CDN $2.00 - $3.00/lb
Frozen	CDN $10.00 - $14.00/lb	?
Processed (Jam & Jellies)	CDN $8.50 – $16.00/12.oz	CDN $8.00 - $14.00/12 oz.

Where price differences arise they tend to differ based on the quality of the product and the branding.

Competition

Competition in the fresh, frozen and processed wild or organic Saskatoon and Huckleberry market is relatively localized and seasonal, often marketed at farmers' markets, roadside kiosks and gift shops near where berries are picked. Several producers of fresh and frozen berries and jams and jellies can be found Smithers, Telkwa, and Hazelton and Vanderhoof.

Competition in the cultivated (non-organic) saskatoon and huckleberry market is the most significant competition in the berry product market and it is widespread and growing. New cultivated berry farms are entering the market each year especially on the prairies. Much of the production is sold wholesale to larger processors out east but some of these farms are also selling into regional grocery outlets or marketing processed products themselves.

There is less competition in the wild (natural) and organic berry market in North America but the market is also relatively small.

Market Opportunities

There are local and external market opportunities in the wild berry market for Morice TSA businesses.

Locally, there is an opportunity to sell fresh, frozen and processed huckleberries and saskatoon berries to resident consumers and tourists via roadside sales, farmers markets, gift shops, restaurants and lodges and perhaps independent grocers. This is a small and relatively seasonal market but enough to keep a small business occupied for part of the year.

The bigger market opportunity is the external market, whether that is the Prince George to Prince Rupert highway corridor or further south into southern BC or the US. However, given the existing competition and the disadvantageous shipping costs, the most marketable product will likely be processed berries. Moreover, the product will need to be unique enough to stand out and garner a mid to high price to offset initial low production volumes. Some products in this area may include:

- Gourmet berry products in unique packaging. The recipe might be developed with a local chef in the Morice area or from a notable Vancouver restaurant or culinary school. There are a couple of Vancouver chefs that cook exclusively with wild or natural products.
- "Native" berry products packaged in a rustic manner that are sold into key historical venues and tourist destinations (i.e. Barkerville, Fort Steele, Museum of Man, Museum of Anthropology UBC, Glenbow Museum, Fairmont Hotels, Head Smashed in Buffalo Jump, Tyrell Museum, the Smithsonian etc.)

- Niche products in the sector that are less common (i.e. incense, chocolates, barbecue sauces, chutneys, candy, non-alcoholic sparkling wines, berry bars, flavoured honey mustards and relishes etc.)

Unless, there is considerable local expertise available to draw upon, such niche businesses will be difficult to launch in a large way. They require considerable design and marketing development to make them successful. Assistance is likely to be necessary.

Sales Channels

The channels for local sales in the Morice area direct to the consumer are roadside sales, farmers markets, local home or craft shows. Wholesale channels include gift shops, small independent grocery stores, local lodges and resorts and restaurants.

The channels for direct sales outside the Morice area can be through regional craft, home shows or through a website, a catalogue or through magazine advertising. Wholesale sales to gift shops, specialty or natural food stores, resorts or lodges, museums or natural history galleries can be made door to door or through regional trade, craft or resort tourism shows and trade magazine advertizing.

Conclusion

The wild berry business is appropriate for the Morice TSA insofar as there is an abundant supply of berries in the region. Huckleberries and saskatoon berries in particular are the most marketable type of berry from the area, which make these berries a likely focus for development. The market for fresh and frozen berries is likely to be restricted to the local resident and tourist market in the area due to the lack of affordable refrigerated shipping. There is, however, an opportunity to serve a larger external market (i.e. the hwy 16 corridor or further south) with processed berry products. Among the traditional processed berry products (jams, jellies and juices) competition is fierce but there may be opportunities to compete in the higher-end, natural and specialty food market or in the gift shops that cater to the cultural tourist. To secure market share in these higher end markets, the processed product will have to be of very good quality, well packaged and unique.

Recommendations to the LRMP Table

To assist with the development of a wild berry production the LRMP can implement the following recommendations:

Recommendation - An inventory of productive berry sites should be undertaken.

Recommendation - Areas considered well suited for berry production should be identified and managed for this use.

Recommendation - Access to these high valued berry sites should be maintained.

Botanical Forest Products for the Nutraceutical and Medicinal Herb Market

Overview

The purpose of this opportunity analysis is to identify options for managing species for pharmaceutical development in the Morice Land and Resource Management Plan (LRMP).
This analysis will discuss economic options and issues associated with utilizing the indigenous forest growing species in the Morice LRMP.

The industries that are based on utilizing natural plant species for health and wellness are diverse. The sector includes products that are stringently regulated in the international market place, which are produced in sophisticated production facilities as well as products made by simple manufacturing methods created with low tech equipment that are traded and sold within local markets. Most commercial products are made from cultivated herbs purchased from large mechanized herb farms or from countries outside of North America. A number of popular herbal and pharmaceutical products such as Echinacea, North American Ginseng, White Willow Bark, St. John's Wort and Oregon grape have been harvested from the wild and sold in high volumes to brokers who then sell them to pharmaceutical and herbal remedy companies.

While production methods, market focus and raw materials are diverse within the industry; even more complex is the classification of products that are derived from botanical species. Attempting to define these products is difficult. The lines between them are less concrete than a decade ago. Large drug companies are including botanical ingredients in some product lines, attempting to ride the wave of popularity created by public preference for natural remedies. Herbal remedy companies have become more rigorous and formal in their marketing and testing to increase customer confidence in their product thus becoming more like large drug companies. Consumers must be vigilant in order to determine the quality of the products they are purchasing.

Pharmaceuticals are a wide range of prescription and over the counter compounds formulated, advertised and sold to treat the symptoms of illness. They are generally produced by major drug companies and are derived from chemical compounds or synthetic replications of natural plant materials. There are some exceptions where extracts of plant material are still used. These include products that can be used both topically and internally. An example is Feverfew used for migraine headache remedies. These products require a federally approved Drug Identification Number to be sold to consumers. Products carrying a Drug Identification Number (DIN) have gone through a process of testing and are licensed and registered with Health Canada. In 1997, there were 22 pharmaceutical companies registered in B.C., seven of those manufactured products derived from forest products or soils.

Nutraceuticals are functional foods. They are defined as products derived from natural sources. Consumption is likely to benefit human health and enhance performance. These foods are in the form of a supplement/ingredient where specific components of the food are isolated or as a complete food. Because the focus of these products is on enhancement and not treatment, they are not considered drugs and do not require a drug identification number, at this point, but new Natural Products Regulations to be enacted in January 2004 could require the licensing and registration of some nutraceuticals.

Herbal Remedies and Botanical Products are derived from plants or other natural substances and are produced for the treatment of specific conditions or as a preventative measure against contracting illness. They can be applied topically as salves, creams and oils or ingested as syrups, tinctures (distilled products) and pills. To further complicate matters, herbal products that are purified and standardized to stringent standards that isolate one or two medicinally active ingredients are called phytopharmceuticals. If there is a claim of treatment of disease then these products will require a DIN. If these products carry no claim of treatment then they may consider a food product but careful interpretation of the new Natural Products Regulations should be carried out by any organization contemplating getting into the botanical products market.

Beauty and Personal Care Products: Both large cosmetic companies and small natural product companies use botanical products in their formulations. As with the health and wellness industries, public preference for natural products has pushed the cosmetic and personal health care market towards the use of plant materials. The Body Shop and Aveda are large-scale retail examples of these types of products.

Common Products Made from Botanical Species:

- ⇒ Herbal Capsules and Vitamin Supplements
- ⇒ Specific Formulas for Treatment of Disease.
- ⇒ Bulk and Packaged Loose Herbs
- ⇒ Herbal Tinctures (Extracts) and Cough Syrups
- ⇒ Herbal Salves and First Aid Ointments
- ⇒ Energy Bars
- ⇒ Fruit Juices with Herbal Extract Ingredients
- ⇒ Herbal Teas
- ⇒ Cosmetics
- ⇒ Herbal Shampoos, Conditioners and Hair Dyes
- ⇒ Face and Body Creams and Soaps
- ⇒ Herbal Home Cleaning Products.
- ⇒ Herbal Internal Cleansing and Fasting Formulas
- ⇒ Herbal Perfumes and Scents.
- ⇒ Herbal Jams, Honey and Syrup
- ⇒ Culinary Blends and Food Additives
- ⇒ Aromatherapy Oils, Candles and Personal Care Products
- ⇒ Pest Control and Insect Repellents

Source of Forest Growing Botanical Materials:
Perhaps one of the most debated topics in the natural products industry surrounds the procurement of high quality, ethically produced raw materials for making pharmaceutical, nutraceutical and botanical products. Forest growing plants in their natural habitats are thought to be a premium product that is synonymous with purity and optimum levels of medicinally active ingredients much like certified organic herbs. What's more, harvesting of forest grown botanical plant sources are by and large free and unregulated therefore the only overhead investment is in the time of the harvester and a vehicle and gasoline to get to remote locations where wild botanicals exist. This method of obtaining raw botanical material for sale or processing is called **wildcrafting**.

Critics of wildcrafting are concerned that some plant species will be harvested to the brink of extinction if a particular product becomes popular in the marketplace. This has happened with Echinacea angustifolia, and Goldenseal in the American hardwoods forest.

An alternative method for producing forest growing medicinal plants is to use the method called **agro-forestry** or **forest farming** or designating certain areas as **cultivation forests**. These are methods of intentional cultivation for the purposes of obtaining botanical plant species. Forest-growing botanicals seedlings are reproduced in seedbeds under the forest canopy or in greenhouses and nursery beds. They are then planted in their natural habitat and cultivated in patches or organized rows created in the forest floor. This method can help to assure reliability of supply as well as maintaining biological diversity by not harvesting plants outside of the cultivated area. It also alleviates forest use conflicts between wildcrafting, wildlife browse, recreation use and timber harvesting. However, there is a cost to such cultivation in labor and materials, which increases the overhead costs of harvesting the plants.

A compromise between the two methods of sourcing botanical ingredients is to practice sustainable harvesting by rotating harvest patches according to a 3 -year cycle thereby allowing natural regeneration of plants growing in the wild. However, there is little known about the regeneration capacities of many forest species and this method is difficult to monitor as unscrupulous operators may have access to the forest at any time and over-harvest the rotational patches. Pre-harvesting botanicals from proposed forest logging road locations and clear-cut blocks is another way of sourcing materials.

Industry Position:

For new entrants into the marketplace the decision regarding type of product, size and scale of operations is an important one. The primary decision is to determine if the business will be based on:

⇒ Harvesting/ growing and selling of raw materials to brokers or large manufacturers
⇒ Value-added production
⇒ Distribution
⇒ A combination of activities

The bulk sale market is based on harvesting large volumes of plant materials at low cost and making contacts within the wild harvest broker sector. Usually the minimum increment is 50 kilograms per sale. Security of available plant material in high volume is required to be successful in this marketplace. While this market can be uncomplicated, prices fluctuate wildly and it is suitable for seasonal and supplemental income rather than being the basis of a regional industry.

Value-added products derived from forest growing plants can be produced at a cottage industry scale providing supplementary income for a family or partnership, or at a community scale utilizing local labour and shared resources to participate in a medium sized enterprise or at a commercial scale with a focus on entering a provincial or national/international marketplace. A collective is also possible with a number of cottage industries contributing to a single product such as gift baskets where one business may supply the container and other business's supply basket contents etc.

A provincial context:

The number of growers and wildcrafters in B.C. varies from year to year, depending on economic returns and prospects. This sector of the industry is characterized based on data collected in 1999 and 2001. The number of producers includes approximately 50 herb growers, 60 ginseng growers, 45 sea buckthorn growers, and 30 wildcrafters. The large majority of growers (77%) employ 1 to 3 persons, including themselves. The next most prominent category is 4 to 20 persons (19%) (Table 23).

Table 23. Percent of Growers by Employment Class

Employment Class	Percent of Growers
1 to 3 persons	77
4 to 20 persons	19
21 to 50 persons	3
51 to 100 persons	1
More than 100 persons	0

Source: Health Product and Functional Food Industry 5 Year Strategic Plan

Almost half of the growers generate sales under $25,000 annually. About 80% of all the respondents generated annual revenues under $250,000, including those that carried out other business activities in addition to growing (Table 24).

Table 24. Percent of Growers by Sales Revenue Category

Sales Revenue Category	Percent of Growers
Less than $24,999	48
$25,000 - $74,999	28
$75,000 - $249,999	14
$250,000 - $999,999	5
$1,000,000 - $9,999,999	3
$10,000,000 - $49,999,999	2
More than $50,000,000	0

Source: Health Product and Functional Food Industry 5 Year Strategic Plan

Growers have a number of business activities to complement their production. About 40% only produced raw ingredients. The remaining 60% carried out up to 7 other business activities (Table 25). Drying, grinding, extraction, cutting and packaging are value-added activities carried out by a significant proportion of growers.

Table 25. Percent of Growers by Business Class

Business Activity	Percent of Growers
Producer / grower	100
Distributor / marketer	23
Importer / exporter / broker	17
Ingredient supplier	17
Product manufacturer	17
Retailer	13
Ingredient processor	11
Wildcrafter	8
Laboratory	6
Packager	4
Custom processor	4
Custom manufacturer	1
Custom packager	1

Source: Health Product and Functional Food Industry 5 Year Strategic Plan

Profile of the Wildcrafting Sector in B.C.

- ⇒ 15-20 serious commercial collectors
- ⇒ 200-300 commercial gatherers.
- ⇒ sell almost exclusively to US bulk suppliers and large manufacturers of herbal medicines
- ⇒ Estimated 1997 gross revenues paid to these collectors were Can. $2m - $3m.

Location Analysis

As mentioned earlier, it is necessary to determine the product, business size and scale and target market for entering the botanical sector. Thirty-six plant species have been identified as having medicinal or nutraceutical value that grow in the area defined as the Morice LRMP. Although there is a diverse range of understory plants with nutraceutical and medicinal applications growing in the Morice LRMP, there are few that currently show market potential when they are evaluated by the criteria of abundance, eases of access, vulnerability, and uniqueness (See Appendix #1). There may be more plants commonly thought of as weeds, which may also present some opportunity such as dandelions, chickweed, St. John's Wort and red clover and burdock, which are not listed in Appendix #1. Species such as Arnica and Valerian, which have popular applications, are not present in the Morice LRMP.

Additionally, until a reconnaissance level inventory and a rough gauge of potential annual harvest volumes are conducted, it is difficult to determine the scale of business activity that can be achieved from forest growing botanicals. **It is recommended that inventory assessments and sustainability research be included in any business plans.** Using agro-forestry methods could expand the availability of plants and berries beyond the naturally occurring volumes if supplemental plant materials were desired to market demand for a specific product.

Of the thirty-five identified species, there are fifteen that pass the criteria for abundance and low to medium commercial viability. These are reduced further if we eliminate the group of berry bushes that are analyzed in a separate opportunity analysis; however there may be opportunity to combine berry and botanical species into novel products. Some berry species such as Bilberry and Cranberry have nutraceutical uses apart from their culinary value. Of the listed plants Devil's Club and Western Red cedar are in highest demand for a variety of applications.

The list of botanical products suitable for industry focus would be:

⇒ ***Willow species***
⇒ ***Prickly Rose***
⇒ ***Paper Birch***
⇒ ***Devil's Club***
⇒ ***Bedstraw***
⇒ ***Western red cedar***
⇒ ***Horsetail***
⇒ ***Subalpine fir***
⇒ ***Trebling aspen***
⇒ ***Spruce***
⇒ ***Balsam Popular***

The potential use of botanicals growing within the Morice LRMP is listed briefly in Appendix #2. Both First Nation's traditional use and North American folklore and clinical trials would produce an exhaustive list of applications for many of the plants and it is important to seek either First Nations expertise or a trained clinical herbalist to assist in product development.

Bedstraw:

Bedstraw is more common in lower elevation areas (SBSdk) in the valleys on circum mesic sites. It can be found in cutblocks and mature forest but will be most abundant in mixed wood or meadow/deciduous forests. Plants are generally sporadically dispersed. These areas are generally reasonably accessible by road and closer to population centres.

Devil's Club:

Found in moist areas, especially seepage sites on toe slopes or in gullies under a tree canopy. It is not really found in the SBSdk and is mainly in the SBSmc2. There are extensive areas of club on the northeast side of Babine Lake (accessible by road but a long way from any community). Devil's Club can occur in continuous patches.

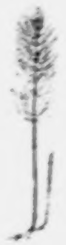
Otherwise most areas that would have devil's club would be an hour or more drive plus walking to appropriate sites.

Highbush Cranberry

Highbush cranberry can be found under a canopy and in cutblocks though generally, not highly concentrated. The species is most abundant in moist relatively rich sites. No specific geographic location – i.e., widespread distribution if site conditions are right.

Horsetail

Horsetail is most abundant on moist to wet rich sites and along the margins of lakes or swamps/bogs. Found in concentrated patches. Horsetail is common throughout the TSA.



Horsetail

Huckleberries/Blueberries

Dwarf Blueberry

This analysis deals primarily with blue berries as opposed to red huckleberries in any of the accessible areas. These species are more common in the SBSmc2 and ESSF (higher elevations) than in the SBSdk. Areas of best berry production are usually associated with a burn. Higher levels of overstory shade reduce plant and berry abundance. There are areas around Morice Lake and around Nadina that have good berry production. It is likely that areas in the South of the District (e.g. Sweeny Lake) have good berry production but this is a minimum two-hour drive. Some of the high elevation sites are likely to be difficult to access.

Paper Birch

Birch is not abundant in the District and is generally found in mixed stands at lower elevations, particularly along river valleys. It is probably most abundant on private lands. Birch will be relatively accessible compared to other species but not abundant.

Paper Birch

Prickly Rose

Rose is wide spread occurring on moderately dry to dry sites. It is often concentrated in small pockets in clearcuts but is sparsely distributed in a mature forest. There are likely to be many areas with good access along major roads with some prickly rose.

Raspberry

Raspberry

Raspberry benefits from disturbance and there are examples of cutblocks with higher concentrations of raspberry but pockets will not be extensive. Best site conditions are mesic and moist areas that have been disturbed and do not suffer from high levels of overstory shade. Generally occurs in areas with good access.

Saskatoon

Saskatoon Berries

Abundance of this plant is not high. It occurs more commonly in the Lakes District and is found on dryer, exposed sites. It is often found along roadsides where the road crosses a dryer hill with a south exposure. Areas in the Morice LRMP where there is a concentration of Saskatoon are not known but it is probable that it would be pretty accessible where it occurred.

Spruce

Spruce is widespread throughout the TSA and easily accessed.

Subalpine-fir

Subalpine-fir is widespread throughout the TSA, but is rarely found at lower elevations (SBSdk). It is not as accessible as spruce but still easily accessed.

Thimbleberry

Thimbleberry

Thimbleberry can be found in low concentrations in an understory position at medium and low elevations, which are generally quite accessible. Fruit production is very poor unless overstory shade is low. It is sometimes found in higher concentrations in cutblocks on sites which are richer and moister than average. It is also found in higher concentrations along roadsides that run through richer, moister sites. Fruit production is generally low.

Trembling Aspen

Trembling aspen is widespread at lower elevations near population centers. The highest concentrations occur on private land and it is more prevalent in logged areas than unlogged. On crown land, access to aspen is relatively easy but not as good as on private land.

Willow

Willow occurs on moist sites throughout the TSA. It often occurs in small concentrated pockets along draws and depressions or along streams. It can also be dispersed. On moist sites that have been disturbed, levels will often increase. Likely the best candidate areas will be on lower, more productive slopes that have been partially logged or burned 15 or more years ago.

Western Redcedar

Western Redcedar

Western redcedar occurs in the southern portions of the Morice LRMP. It is not abundant within the TSA. It is listed as a vulnerable component within the rare plant associations between Amabilis fir, western redcedar and oak fern and the association between Amabilis fir, western redcedar and devil's club wet sub maritime. From available reference materials it is not discernable how much western redcedar is harvested as commercial timber.

Market Analysis

Global Markets:

The global market for natural products was estimated to reach US $128 billion in 1999. The US accounts for 34% of the global market, followed by Europe (33%), Japan (18%), rest of Asia (7%) and Canada (3%). Growth is anticipated to continue at a rate of 7% worldwide.

The US is the largest export market for Canadian products. Growth in demand for herbal extracts and other is projected to increase dramatically in the 1999 to 2009 period, by year-over-year rates between 15% and 20%. The most lucrative export markets are specialized consumer segments in Japan, the Pacific Rim, Asia, the US and Europe.

B.C. Markets:

Annual manufacturer sales of dietary supplements, herbal preparations and functional foods are estimated at $550 million. The largest proportions of annual sales under $250,000 are in the retail producers/growers and ingredient supply businesses. Companies with sales exceeding $10 million annually are found in the packaging, product manufacturing and distribution / marketing sectors. Mid-sized companies ($250,000 to $10 million) dominate in laboratory/testing, custom and ingredient processing.

Canada is the most frequent destination for products handled by the companies in the survey, with 82% of the companies reporting sales in Canada. A high proportion of companies also sell to the US (51%) and Asia (41%). Sudden growth in this industry has been the emergence of nutraceuticals, functional foods, and the growth in aromatherapy products.

The main medicinal botanicals gathered from the wild in BC during 1997 (both in terms of revenues and weight) were:

- ⇒ ***St. John's Wort (approximately 150, 000 lbs)***
- ⇒ ***Oregon Grape (20,000 lbs.)***
- ⇒ ***Cedar Oil (around 6,000 lbs.)***
- ⇒ ***Devil's Club (less than 5,000 lbs.)***

Medicinal botanicals wildcrafted in smaller quantities included

- ⇒ ***Nettles,***
- ⇒ ***Burdock,***
- ⇒ ***Yarrow,***
- ⇒ ***Mullein,***
- ⇒ ***Arnica,***
- ⇒ ***Chamomile,***
- ⇒ ***Tansy,***
- ⇒ ***Rose Hips,***
- ⇒ ***Cascara,***

- ⇒ ***Yew,***
- ⇒ ***lichens such as Usnea wirthii***

Indigenous medicinal BC plants much in demand on the European herbal markets include:

- ⇒ **Devil's Club (increasingly used as a ginseng substitute in herbal formulae)**
- ⇒ **Cascara bark**
- ⇒ **St. John's Wort**
- ⇒ **Black Hawthorne *(Crataegus douglasii*)**
- ⇒ **Mountain Ladyslipper *(Cypripedium montanum,* a threatened orchid**
- ⇒ **Hemp Dogbane (*Apocynum cannabinum),***
- ⇒ ***Equisetum pratense* (horsetail)**
- ⇒ ***Circaea alpina* (nightshade)**
- ⇒ ***Valerian sitchensis***

Market Opportunities: Product Selection

Market opportunities for medicinal products in the Morice LRMP area should focus on niche value-added products. There is little profit to be made in selling bulk dried or fresh botanicals unless the plants are located in areas accessible to transportation routes and harvest and preparation time can be reduced to a maximum of two or three hours per kilogram. It is unlikely that many of the plants in the Morice LRMP area would be easily marketed in this fashion with the exception of Devil's Club which commands a dried bulk price of between $60.00 and $160.00 per kilogram wholesale, with the harvester being paid approximately one quarter to one half the wholesale price. Devil's Club has the potential to become a very important herbal remedy due to the possibility of success in treating tuberculosis as well as other applications. The other exception is Western red cedar foliage. Due to the somewhat regional isolation of the Morice LRMP, shipping bulk dry or fresh medicinal products to wholesale markets in the major centers to the south could be cost prohibitive but not insurmountable

The issue of First Nation's proprietary rights, historical and ceremonial use, traditional knowledge including product prescreening of native species, as well as treaty rights will require separate discussion and can not be addressed within the scope of this analysis.

Depending on the traditional and cultural viewpoint of local First Nations regarding commercialization of medicinal species, there could be a small to medium size enterprise opportunity for First Nations' communities or other entrepreneurs to develop traditional use products or specialty products. The focus on First Nations or pioneer heritage remedies would be a natural marketing tool for niche products. This does not preclude, however, the fact that non-First Nations peoples and/or communities could embark on some level of commercialization of medicinal species. The unique opportunity for value-added products lies in the fact that they require fewer raw materials and sell for a higher price premium than bulk dried pharmaceutical or botanical products.

Because the adventure tourism, guide outfitter sector and sport fishing industries are well established in the area, it may be prudent to develop a series of products or travel pack kits that offer botanical first aid and cold remedies tailored for the outdoor enthusiast. Plant species such as Willow and Poplar can be formulated into skin creams and salves for use on sprains and burns. Willow is also used as an analgesic in the same way as aspirin and can be used as a tea or refined encapsulated. Poplar can be used as a tincture or syrup for treating coughs. Devil's club has antiviral, anti-bacterial, anti-fungal properties and can be used as a respiratory stimulant as can Western red cedar. Western red cedar has antiseptic properties and Uva Ursi is a worthy astringent. Rosehips from the Prickly Rose bush may be used in dried tea in combination with other plants such as, raspberry leaves, wild mint, Labrador tea, and dried berries to act as a good source of Vitamin C without the bulk of carrying fresh fruit. Huckleberry juice could be combined with herbs such as Devil's Club and local honey to create cough syrups or herbal infused juices. Fruit leather can be made from berry mash and by incorporating a combination of dried berries, is another addition to a product line geared towards the outdoor tourist. Novel packaging that is single portion, airtight and waterproof would be optimum for creating travel kits or juices targeted for an outdoor market. Brand identification should focus around the First Nations or pioneer theme, and be sophisticated and upscale.

Another enterprise that may be considered could be the distillation of essential oils from cedar, fir, spruce and pine logging waste and tree limbing. Large quantities of material are required for the production of essential oils but with a well co-coordinated program between forestry operations and a potential distillery it may be possible to build an enterprise that could collect bark, boughs and branches from areas adjacent to the Morice LRMP area as well as from the Morice. Because the product is high value and is usually packaged in relatively small containers, shipping costs of the final product would not be prohibitive. Essential oil is sold in 10-15 milliliter bottles for retail sales and may be sold to soap-makers and candle-makers in larger quantities. Currently, there is still good market growth potential for high quality conifer oils. Canada Post most effectively handles shipping of all products therefore a separate transportation analysis will not be provided.

Cedar oil also as an industrial application, however the distillation process for this crude oil would be at a different scale than for essential oil production and is not considered in this analysis.

Sales Channels

Sales channels for botanical first aid and cold remedy products and first aid kits as well as infused juice or berry fruit leather would be to tourist locations, sports shops, grocery stores, guide outfitters and natural food stores located in the Morice LRMP as well as in the larger centers of Smithers and Prince George. Approaching larger retailers such as Mountain Equipment Co-operative and Valhalla Pure Outfitters in Vancouver would also be a possibility as the clientele has an affinity for natural products. Airport and B.C. Ferries gift shops are other candidate market channels.

The essential oil market is large and varied. Essential oils sourced from conifers have a heavy market in the Christmas candle, potpourri and burning oil sector but conifer oils are used for therapeutic and aromatherapy purposes as well. Spas, salons, health food stores and gift shops in small and large centers are natural targets for essential oil products. Website sales would be an advantageous market for these products.

Separate from these products, Aveda Cosmetics is initiating a First Nations line of products and is hoping to source certain raw materials from First Nations enterprises. While the list of indigenous plants Aveda is seeking occurs in the southern portion of the province, there are some species that can be cultivated in more northern climates.

Production Facilities and Location

Exclusive of construction costs and consumable costs, equipment required for the development of a botanical production facility would vary depending on the type of products that would be created and the scale of operations desired. A small-scale plant for producing a variety of herbal remedies at a cottage industry scale would cost approximately $15,000-$20,000 to set up.

Conversely, developing a medium sized plant, which would be capable of producing the types of products discussed in this analysis, could cost up to $275,000 in capital equipment costs. Included in the list of equipment needed would be washing equipment, cutting and sorting tables, dryers, steam kettles, a hammer mill, vacuum sealers, steam distillation units, bottle filler, labeler, etc.

There could be some thought put into combining a medicinal production facility with other enterprises such as a fish cannery or berry production facility. Experts in designing food production plants may be able to design a facility to overlap equipment required for production or packaging.

Production of first aid containers or kits would provide another opportunity and would require additional investment in a cutting table and industrial sewing machines.

Within the Morice LRMP area, Houston would seem the likely candidate area for a botanical production plant. Transportation routes from Houston and a youthful population to supply a labor force would be an advantage. However, Granisle may be another suitable location in that it is situated in an area where there is a lower level of yearly income and recreation and tourism activity is high, thereby creating an opportunity for the plant itself to be a tourist attraction. First Nations initiatives would be naturally located in an area that would provide the most benefit for community employment.

Employment

The labor force required for a botanical enterprise or the amount of self-employment generated by developing a botanical enterprise will be dependent on the nature and size of the business. There would be employment opportunities in harvesting and or cultivating plants from the wild, preparing the material for value-added production and for each step of production of the products. Administrative work in marketing and financial management would also be required.

Conclusion

The botanical product business within the Morice TSA must be well planned and researched for costs, regulatory requirements and market potential. The species that are commercially viable are limited in number and at this writing; it is unknown what sustainable yield levels might be. What's more, existing research examining the sustainable harvest of many of these species is limited. Despite these uncertainties it is possible that a modest industry or series of cottage industries could be developed around botanical species within the Morice TSA.

Expertise in botanical product manufacture will be required as well as sophisticated packaging and marketing. Competition in the botanical product sector is high for standard products such as Echinacea and St. John's Wort but plants growing within the Morice TSA provide the opportunity to create niche products and market them to target audiences.

Due to the lack of settlement in the area, the Morice TSA may be of interest to pharmaceutical companies that conduct research and bio-prospecting to determine which plant species might provide undiscovered treatment for disease or undiscovered substances which might be valuable as natural biocides. Spin-off economic benefit could occur as a result of these investigations. Affiliations with universities and research and development companies may be of benefit.

Recommendations to the LRMP Table

Recommendation - The LRMP should recommend that the provincial government undertake an inventory of commercially viable botanical species within the Morice LRMP area.

Recommendation - The LRMP should recommend that the provincial government undertake research that looks at possible sustainable harvest levels of commercially viable botanical species within the Morice LRMP area.

Recommendation - Management direction should be developed for any identified area containing significant volumes of sustainable botanical forest products. This will mitigate any potential land-use conflicts should botanicals be identified after the LRMP process has concluded.

Development of Willow Furniture Businesses

Overview

The willow furniture industry in North America is primarily a cottage industry comprised of small one person shops, who do there own stem collecting, processing and marketing, primarily serving local markets, and operating on a part-time basis. The irregularity of the raw material and the finished product make processing necessarily labor intensive and craft oriented.

The willow furniture business is a suitable niche for the communities in the Morice TSA to exploit. The sector is relatively easy to enter into, requiring only basic tools and skills; raw material (willow and alder saplings and stems) is free, relatively abundant and unregulated. As well, there is a local and external market to sell into.

Shipping costs out of the area will tend to restrict export-marketing opportunities for sales of small willow product (i.e. home accessories) but a local, albeit small, market does exist for larger full-size furnishings (chairs and tables, etc.).

Opportunity Analysis

A number of factors are crucial to a successful willow furniture business:

- Affordable access to suitable hardwood saplings or stems (willow, birch, alder, maple, etc.)
- A market for willow furniture sales
- Adequate production knowledge
- Financial capital for a shop, tools and marketing
- Affordable access to willow furniture markets (affordable shipping costs)
- An interested and capable entrepreneur(s)

Location Analysis

Supply of Raw Material

There are both willow and alder stands available in fairly large quantities in the Morice TSA and harvesting of these stands is free and relatively unregulated.

The location of willow stands tends to be near or in the wetland or lake systems of the areas including but not limited to:

- the wetlands near Granisle
- south of Houston near the Equity Mine area
- near Owen Lake and Chapman Lake

Many of these areas can be accessed to a great extent by highway or logging road.

The availability of young willow stems and saplings tends to depend on the extent of moose browsing. Where moose browsing has occurred recently, young stems and sapling tend to thrive.

Alder stands tend to thrive in the eastern part of the Morice TSA (around the Houston area) in avalanche chutes. These stands are less accessible by road.

There is no stumpage fee levied on harvesting either alder or willow saplings or any regulatory restrictions on small volume cuttings. Therefore, access to this resource is relatively easy. Also, willow and alder are occasionally cut during silviculture prescriptions and burned or left to rot. An opportunity may exist periodically to link collection of willow and alder saplings or stems with these silviculture activities by entering into discussions with local Licensees.

Generally, small scale harvesting of willow or alder stems should not present an environmental concern in the Morice TSA. However, if the large volumes of harvests are being planned, the harvester should consult with the Ministry of Water, Land and Air Protection regarding potential environmental guidelines.

Shipping

Commercial shipping of small volume freight within the Morice TSA or within northern BC typically occurs via truck, courier or Canada Post and is expensive but no less so for anyone else shipping in the area. Canada Post is the cheapest method of shipping small parcels. Courier or truck must ship larger parcels. Alternately, it may be less expensive for producers to ship the product personally in a local market.

Commercial shipping of small volume freight to larger markets south of the Morice TSA, (i.e. Vancouver or the U.S.) is also typically done by Greyhound Bus Lines, Canada Post, courier or by truck. Again, Canada Post is the cheapest method of shipping small parcels in Canada. Larger parcels and US exports are typically done by truck; however, this method can be prohibitively expensive, much more expensive than for a business closer to markets or major highways. Commercial shipping costs of larger furniture items may seriously limit what can be marketed out of the area.

Production Analysis

The production requirements for willow furniture are relatively modest. The challenge in establishing a successful willow furniture business is to control labour costs and product unique, high quality products.

A heated space is required for a bench, tools and storage of raw material and finished products. As accommodation is relatively inexpensive in the Morice TSA, shop costs should also be relatively inexpensive.

Tool requirements are simple including a drill, razor knife, hammer and nail punch, tape measure and clamps. Finishing of the products can be done with a paintbrush or cloth.

The skills to produce simple willow furniture can be derived fairly easily from a book, a video or a one or two day workshop. Good design and quality furniture, however, are important attributes of a consumer product and this is no less true for willow furniture. To ensure that maximum value and quality can be obtained for willow furniture from Morice TSA, it may be necessary to access design or production assistance or instruction initially.

The main cost of producing willow furniture is labour and therefore the profit margin is a function of using labour efficiently. Typically, this means substituting machinery for labour in the production process. However, because of the irregular nature of the raw material and finished product, mechanization has limited potential. Consequently, labour efficiency in this sector means collecting and drying stems in large batches and processing products or components of products in batches or multiples in order to reduce set up time.

Market Analysis

Demand and Pricing

The willow furniture market is part what is commonly called the "rustic" furniture market, which is composed of furniture made of "raw" poles, logs, slats or stems. This market segment constitutes only a small fraction of total furniture sales in North America and willow furniture even smaller still.

This willow furniture sector is small but it is also growing with the increase in popularity of rustic log and timber frame homes, rural vacation properties and backcountry tourism. These rustic properties, primarily near to metropolitan areas, are the major markets into which willow furniture is sold.

To a small extent, these markets exist locally or near the Morice TSA. There are a number of log homes and timber frame primary residences in the area as well as cottages. There are also a number of rustic resorts, lodges and B&Bs in the area that serve the outdoor tourism traffic (fishing, hiking, skiing, snowmobiling) as well as highway traffic heading to Alaska.

The larger markets, however, are outside the Morice TSA, including those in or near Prince Rupert, Prince George, Kelowna, Kamloops, Vancouver and Victoria. And, the largest markets for willow furniture are in vacation areas outside major US cities.

Typically, rustic furniture or willow furniture has been bought as outdoor furniture, for seating on decks and patios, but it also has also been used to a lesser extent for casual indoor furnishings in entryways, porches and living rooms and in some cases bedrooms and dining rooms.

The price for willow furniture varies depending on the size, complexity and quality of the product. Generally, however, it is not considered a "high end" good and therefore does not command a high-end price. Prices for armchairs, which are the most common form of willow furniture, range from a low of $150 to as much as $600 (Canadian). Those at the low end of the market are simple in style, comprised of few stems and joined with nails. Those at the higher end the market are more complex in style, comprised of sturdy frames and ample stems, joined with coated screws and/or via mortise and tenon, and are finished in linseed oil.

Sales Channels

Consumers generally access willow furniture products via the following channels:

- Rustic furniture outlets
- Rustic souvenir gift outlets
- Home shows
- Advertizing (newspaper, magazine or website)
- Word of mouth

Retail outlets generally access willow furniture products via regional craft or trade shows or via direct sales (producer comes to the outlet).

Competition

Direct competition in the willow furniture sector is very small and localized. Many rural towns in Canada (and the US) have a handful of willow furniture makers, who primarily serve a local market and likely only to do so on a part-time basis.

In the Morice TSA and environs, there is some competition in the local market. There is at least one willow furniture maker in Smithers, Houston, Hazelton, and Terrace. It is not known to what extent these furniture makers sell into the local market, whether they are hobbyist or commercial enterprises and what quality of work they produce but they no doubt garner some of the local market share.

Indirect competition in willow furniture market (i.e. substitutes for willow furniture), on the other hand, is much bigger. There is competition from other types of rustic furniture makers (i.e. the log furniture makers), who are more numerous in BC and North America. There is also competition from the plastic, metal, cedar, wicker and teak outdoor furniture manufacturers as well as the country and craftsmen style furniture manufacturers, who compete on the fringes of the indoor rustic furniture market. Increasingly, these manufacturers are from offshore locations (China, Indonesian, and the Philippines) and provide their products at very competitive prices.

Market Gaps

The most common form of willow furniture in the market place today are chairs, particularly the arm chair and the love seat, which are generally for outdoor seating. Less prolific in the market is willow furniture for the dining room, bedroom and living room. Similarly, less common are home accessories such as:

- Lamps
- Mirrors
- Trays
- Plant stands
- Baskets
- Shelving
- Toys (miniature animals etc.)
- Firewood holders
- Magazine Racks
- Coat Racks (stands and wall mount)
- CD racks

This latter category of willow products (home accessories) is perhaps most opportune for new or remote businesses, since the products require less raw material, less storage and processing space, less processing time and therefore less risk of losing money. They also are small ticket items, which tend to sell faster than big-ticket items. And, home accessories are generally small and can be shipped cost effectively over long distances.

The opposite is true for larger furniture items like chairs, tables, beds and bookcases.

Market Opportunities

Given the remoteness of the communities in the Morice TSA and therefore the high shipping costs of delivering furniture to major markets, there appears to be a two pronged market opportunity to pursue in the Morice TSA:

1. Manufacture small willow home accessories for the local and external markets (see above)
2. Manufacture full size willow furniture (chairs, tables, etc.) for the local market

Mainly shipping constraints discussed above drives the rationale behind this recommendation. Moreover, the larger external market outside the TSA affords a bigger demand upon which to build a business.

Marketing Channels

Marketing of home accessories can be conducted through:

- Showing at provincial and US gift shows, garden shows or log/timber frame shows
- Direct (door to door) retailers sales in larger centres in BC, AB and western US states
- Web promotion
- Advertising in log home and timber frame magazines or websites

Marketing of full size furniture products can be conducted through:
- Showing at local home or trade shows
- Direct (door to door) sales to retailers, resorts and lodges
- Advertising in local media

Conclusion

The supply of alder and willow exists in the Morice TSA in adequate quantities to allow for a modest willow furniture industry. Moreover, the supply of stems and saplings is free and to some extent accessible by highway or logging road. The market for willow furniture is small but relatively uncompetitive. Key opportunities exist for small home accessories both locally and abroad. The marketing of full size willow furniture is probably restricted to the local market due to high shipping costs.

Recommendations to the LRMP Table

Recommendations – A portion of the high wildlife value areas that contain an abundance of willow should be assigned special management that allows for controlled harvesting of willow.

Recommendations - Access to areas containing an abundance of willow should be identified and maintained.

Recommendations - Training opportunities should be explored that develop a skilled labor force for this relatively low cost opportunity.

Agriculture

Introduction

Only 3 percent of total provincial land is considered arable or potentially arable, although up to 30 per cent of the province has some agriculture potential. Farm holdings (21,835 farms in 1996) cover 2.5 million hectares. Of this, 566,000 hectares are in crops and 1.4 million hectares are for pasture or grazing. An estimated 10 million hectares, of which over 8.5 million hectares are Crown land, are classed as open or forested grazing land used by the ranching industry.

All arable soils have been mapped and classified on the basis of quality, and the best classes have been placed within the Agricultural Land Reserve (ALR) to be maintained for agricultural and related purposes. Slightly over 4.7 million hectares of land are in the ALR.

According to the 1996 Census of Agriculture, the average census farm had an area of 116 hectares. However, farm size varies greatly depending on the type of activity, from thousands of hectares in grain or ranching enterprises to less than five hectares in mushroom, greenhouse and poultry businesses (Ministry of Agriculture 2002).

Agriculture is the province's third largest primary industry, behind forestry and mining. Some of the activities carried out by farmers in the Morice include: dairy farming; cattle ranching; and poultry raising.

Sector Development Strategy

The Morice area has a large area of productive undeveloped land. A primary resource necessary for agricultural development is water. Whether raising livestock or growing crops a good supply of water is essential. A number of factors affect the availability of water for agriculture:

- Riparian zones management
- Water volumes
- Regulatory requirements
- Residential water use

In addition to water requirements gaining access to land for agricultural needs is essential to the survival of many farmers. Information gathered from the SWOT analysis indicates that dealing with land-use conflicts and wildlife interactions are significant concerns to local farmers.

In April 2003 the Ministry of Sustainable Resource Management, Economic Development Branch developed an Agriculture Strategy for the Province of B.C. The Agriculture Resource Strategy supports economic development in the agriculture sector by identifying and resolving Crown land and resource access issues. More specifically, the strategy for the agriculture sector in the Morice is focused on strengthening existing agriculture production while exploring alternative species and crops. The provincial agriculture strategy can be accessed online at http://srmwww.gov.bc.ca/rmd/ecdev/agriculture/index.htm .

To develop a strong and diversified sector, land-use designations should be made that allow for unfettered development of land for agricultural purposes. These lands should be located in accessible areas of the Morice close to transportation routes. They should also have a good supply of water that is relatively easy to access.

Diversification within the agriculture sector should also be explored. By expanding into new markets for alternative livestock species and crops the industry can position itself to weather significant downturns in components of the sector. Even with diversification, however, situations such as the recent mad cow incident can have such a pronounce affect of the industry that all areas of the sector fell the brunt, though some less than others. One example of this might be the production of hemp. While crops used for raising cattle were impacted by the mad cow concerns, the market for hemp remained relatively stable.

Identified Opportunities

Table 26 lists the Economic Development action Plan Working Group's agriculture opportunities and their respective rankings.

Table 26. Identified Agriculture Opportunities and Rankings

Opportunities	Ranking
Pig farming	23
Malting or Feed Barley production	25
Hemp production	22
Dairy farming	24
Poultry farming	24
Market gardening (small scale; direct purchase from grower)	24
Organic agricultural products	24
Ranching for large livestock (beef, buffalo, elk, deer)	23
Agricultural tours (including dude ranching)	24
Feed lot	23
Small crop and fruit production (i.e. raspberry and blueberry)	23

Rankings for all agriculture opportunities were very similar. While farming for meat production is seen as the most profitable form of agriculture opportunity in the Morice area, most of these types of opportunities are currently being realized. In addition, pig farming and poultry farming take up relatively small areas and thus do not warrant LRMP involvement. Those opportunities selected for further analysis are Malting or Feed Barley production, market gardening, and agricultural tours. The following sections explore the criteria and conditions for developing the opportunities

The Economic Development Working Group felt that opportunities such as livestock production (pigs, poultry, beef, etc.) did not need a detailed technical analysis because these opportunities are already being realized at various scales of operation. From an economic development standpoint cattle production stands to benefit the economy the most, however, cattle production is currently being done across the Morice. The LRMP Table should consider the importance of livestock production in the Morice. As these activities are largely being done already, the LRMP Table should focus a potion of their energies to ensuring these industries are maintained and strengthened. In the case of cattle production this would entail securing suitable land and a quality water supply for cattle grazing.

Small crop production is similar in many repsects to the "Development of a Wild Berry Business (Cultural and Traditional Use Non-Timber Forest Products)" found in the aforementioned Non-Timber Forest Products Section.

For further information on these and other economic development opportunities interested individuals are asked to review the Ministry of Sustainable Resource Management, Building Blocks. Information on these Building Blocks can be obtained online at http://srmwww.gov.bc.ca/rmd/ecdev/analysis/building_blocks.htm .

Malting and Feed Barley Production

Overview

Barley

Malting barley is used in the brewing industry in the manufacture of beer. Feed barley is used in livestock feeds by preference over other grains because of its higher energy value. Barley for malting needs to be seeded early in order to benefit from soil moisture reserves and to be ready for harvest when the weather is hot and dry and there is no risk of frost or damp conditions. Malting barley must be free from frost damage, excess weathering, 13.5% moisture content as it cannot be artificially dried due to possible damage to the germ which is required in the formation of malt. Malting barley must also be free disease, insects and weed seeds and the samples must be consistent throughout.

About 13 m tonnes of barley is grown in Canada a year with about 1.3 m tonnes being exported as malting barley. The main Canadian barley growing areas are the Prairies and the BC Peace River. Almost 80% of the crop is seeded to malting varieties but due to weather most of the quality potential is lost and the main use of for feed.

The beef feed lot industry with feed lots located close to the source of supply, i.e., the Prairies, uses most of the feed barley produced. There are no feed lots nearer than Alberta but the local imports of feed barley are estimated at 100-200 tonnes for the area west of Vanderhoof.

Opportunity Analysis

There is very little production of barley in the Morice LRMP area because of the relatively short season, except as green feed or silage.

For malting purposes barley needs to be either seeded in October or March. In the Morice area, the risk of winter kill precludes fall seeding. Due to the lateness of spring breakup and the drying out of the land, it is usual for seeding to take place for any crops in April, in an early year, or more commonly in May. Malting barley needs to be seeded early in order to take advantage of moisture reserves, a long growing season and to be mature before poor damp fall conditions prevail. The result of late seeding is late harvest in poor weather conditions.

In most years, any grain that is grown in the region has to be dried. Malting barley cannot be dried due to damage being caused to the germ thus lowering the malting value. It is unlikely that a grain of 13.5% moisture could be harvested in the typical fall weather conditions common in the area.

Location Analysis

Barley, if produced for malting purposes, needs a deep loam with a pH of 6.5 or better. Typically, in areas of low pH lime is required to bring the pH up to an acceptable level. There are no lime deposits in the vicinity that have been developed. Industrial quantities of lime would have to be brought in from a considerable distance. The cost of the freight would eliminate the possibility of its use.

A common problem in the area is the unevenness of the crop, which creates problems with harvesting. This is a typical result of the varying soil and moisture regimes. Weather records show that frosts can and do occur in any month of the year. Frost causes barley to go steely and be below the quality required for malting.

In addition, relatively level fields are required to grow grain crops. The higher quality soils in the region are located on the North shore of Francois Lake but they have steep gradients, which can only be used for forage production with care.

Market Analysis

Barley grown in the area for feed grain for similar reasons as above is thin and has a very low feed value. The custom has been for many years for cattle producers to bring barley in from the BC Peace River or Alberta where a higher protein and energy value grain is produced.

The recent development of bagged silage has led to oats and barley being ensiled for cattle feed. This ensures a higher quality feed, which is not seriously affected by adverse weather conditions. No barley is exported out of the Morice LRMP area. Any barley that is grown is used by the grower for feeding to his own livestock. There is, therefore, no price for local barley.

Recommendations to the LRMP Table

There is unlikely to be any impact on agricultural production by not growing barley for feed or malting because the primary crops are forage based and are used for hay or silage for home consumption. Because of the inclement weather conditions at harvest and the late spring seeding the risk of crop failure and or low quality precludes it as an option.

Market Gardening

Overview

Market gardening is an intensive form of arable farming where perishable crops are grown with high labor requirements. The objective is to grow saleable crops for direct sale to consumers or to stores. Evenness of quality is essential for store sales and consistent supply is also necessary.

Opportunity Analysis

Market gardening, on a commercial scale has been tried a number of times in the northwest without commercial success. The barriers are summed up in the Morice Socio-Economic Base Case (June 2003), "Due to climate, soil and location factors, the Morice has not been successful in growing vegetables commercially. Relatively few frost free days, coupled with no class 1 or 2 soils and a scarcity of class 3 soils and long distances to [substantial] markets have prevented successful commercial vegetable growing (page 55)." Only 200,000 people live in all the area from Prince George to the Coast along Highway 16 including the Queen Charlotte Islands as compared to 250,000 in the upper Fraser Valley alone and 2.1 million in the Greater Vancouver Regional District.

Location Analysis

It is important to recognize that there are significant climate, soil and topography limitations for crop production in the Morice and other parts of the Northwest. Also wholesalers want the full range of products, whereas in the Morice only cabbage, cauliflower, potatoes (in a few places) and turnips are the main crops. For any heat loving crops such as corn or tomatoes there are insufficient heat units and there is no agriculture Class 1 or 2 and very little Class 3 land, which is the minimum required for viable vegetable growing.

Market Analysis

The following are a few examples of the attempts to grow vegetables commercially in the Northwest.

In 1965, there were a few potato and cabbage growers in the Terrace area who did their own marketing to the stores with considerable difficulty. Chain stores want a steady year round supply of product. To have to adjust their supply for a relatively short period in the winter and spring is inconvenient. It also requires the stores to alienate their winter suppliers in the summer when the winter suppliers have their summer surpluses.

In 1981, a vegetable processing plant was proposed for the Bulkley Valley on the condition that the growers would be shareholders in the plant, a requirement set by the Ministry of Agriculture as a condition of a grant. About 6 growers were involved, none of whom had any previous experience of growing the required crops or of vegetable processing.

Nobody had any solution for disposal of culls, there being no swine producers in the area. Equipment on the farm was incomplete due to capital requirements being beyond the capability of the growers.

The main difficulty, similar to the Terrace experience, was marketing. Local marketing did not work because only small volume sales are involved with continual servicing of the stores being necessary. It was found that the best volume marketing was to Edmonton on empty back haul trucks at a very reasonable freight rate.

The final cause of the collapse of the enterprise was the ordering by a Vancouver Island Wholesaler of a truckload of cauliflower. When it arrived it was not wanted due to other supplies being available and was dumped.

The current production of vegetables is on a small scale and all producers market through farmer's markets – not a viable commercial situation.

Recommendations to the LRMP Table

There may be some high quality river bottom soils, which could be used for market gardening, but the majority of the LRMP area is higher ground. The higher capability soils are on the north shore of Francois Lake and have significant slopes, which precludes the possibility of market gardening. However, because nothing has changed regarding the key factors of climate, soils and markets it is not realistic to set aside any of the land areas in the Morice for commercial vegetable growing which have growing conditions of less than Class 3.

AGRICULTURE TOURS & GUEST / DUDE RANCHES

Overview

The agriculture industry in the region is primarily focused on cattle with most farmers operating cow/calf operations. These operations are based on private land where the cows carry their young over winter and give birth to their calves in late winter. The cow and calf pairs are then shifted (by truck or by herding) to crown rangeland where they spend the spring, summer and early fall. Ranchers on horseback often supervise these rangelands. The cattle then return to the farm site where the calves are sold, mainly at auction (in Vanderhoof), to Alberta. Most of the cows are held onto for producing calves for the following year. The home farm is used primarily for growing feed during the summer months. Many farmers have additional crown leases on crown land sites where hay is also harvested.

Tsy'los Park Lodge & Adventures Chilko Lake, BC

Summer tourism opportunities have been identified as a method for increasing the income earning capacity of the ranches and home sites. These types of ranches, combined with accommodation, are usually referred to as "dude ranches" or "guest ranches".

The product options for ranches are:

1) partial and full day horse rides for visitors that come and go on the same day, referred to as Horseback Riding only,
2) providing simple overnight accommodation along with horse back riding and other day activities but often no meals, e.g. Tatelkuz Lake Ranch Resort near Vanderhoof (from $120 per night double occupancy),
3) providing extensive stays (usually 5-7 days), multiple activities and/or exclusive accommodation, e.g. Three Bars Ranch near Kimberley, Stump Lake Ranch near Merritt and Teepee Heart Guest Ranch near Williams Lake (from $110 per day per person including riding to $300 per day including riding), and
4) Exclusive health spa ranches that provide personal care activities often including saunas, massage, speciality diets and traditional riding activities, e.g. The Hills Guest Ranch at 108 Mile and Echo Valley Ranch Resort near Clinton ($300 - $430 per day per person).

Many of the major guest ranches are members of the BC Guest Ranch Association. See Appendix 1 for a list and map of these guest ranches. These Guest Ranches, with one exception (near Valemont), are all located south of Williams Lake. There are two member Ranches in the East Kootenays, 12 in Cariboo/Chilcotin, four near Kamloops and one in the Okanagan. The size the operations vary from being able to accommodate a few people to being able to accommodate close to 100 people.

Opportunity Analysis

The Morice LRMP covers an area that is well outside the area where existing guest ranches exist. The "Ride Only" ranches are often located near major urban or tourism centres, e.g. Kelowna which has only one, to provide an additional day time activity for visitors to an area. The major centres in the Morice are small, and currently have a limited tourism draw. The "dude/guest ranches" are mainly set up for multiple day stays, ranging from 3 days (Friday, Saturday, Sunday) to week long stays, reserved and paid in advance. The existing ranches all require significant travel from regional and urban markets and considerable travel for the large US market.

The dude/guest ranches provide a variety of activities for their guests including swimming, canoeing, hiking, fishing, boating, riding, farm work, and just relaxing. The concept is built on relaxing in the quiet of a ranch and enjoying physical activities each day. It is the mix of quiet, mountain scenery, good meals, water access and horses that are sold. Each of the areas where guest ranches are popular are connected to a regional cowboy tourism branding, e.g. the Cariboo or Rocky Mountains or the "traditional Nicola Valley ranching country". The Morice has a combination of areas that could provide the mix of activities that are currently being successfully marketed but at this point they do not have the "ranching" branding.

Location Analysis

Judging by the significant capital investment in many of the operations and their longevity in the tourism and agriculture industries combined with their remote location (in most cases), the distance travelled from major centres by air is not a constraint. The Morice, therefore, has the potential to sell itself as accessible with an all in cost from Vancouver via the airport in Smithers. It would be quite competitive to many of the operations in the Cariboo and Chilcotin accessed through Kamloops or Vancouver. Marketing to larger centres in western Canada (Vancouver, Calgary and Edmonton) and the Pacific Northwest of the US where access by vehicle is recommended is much less likely given the need for these customers to pass many other closer options while travelling to the Morice unless they are already on their way to the Yukon/Alaska.

To successfully operate a guest ranch requires access by road and it appears that well maintained gravel roads, e.g. main haul forestry roads, are adequate for, and do not deter, the current operations. Also, it seems that the remote road access adds to the "ranch flavour" and it is almost expected by visitors.

Each operation would need large areas (could be on adjacent crown land) where riders can travel each day on a 3 day trip (or three 1 day trips) without visiting the same area twice. They also need to have access to areas where longer 5 to 7 day trips can be undertaken. These trails or routes need to have a mix of scenery and open areas, as riders like to see more than just the bottom 10 feet of dense forests. These operations all need to have easy, close access to water for viewing, boating (canoes and small boats are most popular), swimming and fishing.

Market Analysis

The market for horse riding only is focused on visitors to a region and locals looking for a half-day or all day activity. Catering to this group is difficult because the level of demand (number of horses and guides) is constantly uncertain. Given the small resident population in and near the Morice, combined with a short good weather season, this activity is expected to be difficult to operate viably.

The BC Guest Ranches market into large centres in western Canada and the Pacific Northwest. They market heavily to urban young adults (25-35 year olds), families and older active people (50-60 years old). With the mix of activities from fishing to boating to sitting in hot tubs as well as riding, they pitch their product to meet a wide range of interests. The pricing of the experiences are focused on upper middle income families or middle income individuals – the same market as ski resorts. The package concept focuses on a short time get away – 1 long weekend or 1 week – and matches very well with the trend toward more people taking shorter holidays more frequently. Given the dominant trend towards middle and upper middle income families having two incomes and limited time, all inclusive packaged holidays that require minimum preparation, minimum specialized equipment and minimum travel time (4 or 5 hours from home one-way) are very attractive. Resorts that have a variety of activities that can meet the needs of a variety of fitness levels in each party widen the range of clientele that they can attract.

The Morice, particularly the southern parts, has the potential to attract visitors for packaged holidays for a guest ranch experience if linked to all inclusive package holidays or linked to the quality fishing in region. This is especially true if the guest ranch is located within two hours of the Smithers Airport and provides great mountain scenery.

Recommendations to the LRMP Table

The Morice LRMP table should address the following recommendation when considering development opportunities associated with agriculture tours:

Recommendation - Identify locations where the beautiful, open scenery exists in conjunction with bodies of water and ranch operations. In these areas, significant tracks of land are required that are located within the ranches' freehold land or adjacent crown land.

Recommendation - Review the potential land use conflicts that would significantly limit the quality of the visitors' experience, e.g. industrial logging operations underway during the summer months within hearing distances.

Land Development / Infrastructure

Introduction

With an abundance of undeveloped land and lakeshore and an incredible natural beauty the Morice LRMP area contains a number of potential sites for property development. Most private land in the Morice is located in proximity to the highway 16 corridor, with noted exception being the municipality of Granisle. Private land accounts for fewer than 2.5% of the total land base in the Morice. With an estimated population of 5,196 the number of people per km^2 is 288.7. In short there is ample space for development opportunities.

Due to the vastness of this region infrastructure is limited primarily to the municipalities. All but a few roads in the rural areas of the region are gravel. Transportation in and out of the region is by Highway 16. While there is a small airstrip near Houston all commuter traffic to the region is through the regional airport located some 75 km to the north in Smithers. The availability of a large infrastructure remains a significant barrier to major resource development in the area. One significant barrier for milling operations is the development of a suitable power supply in the region.

Sector Development Strategy

While Land and Water British Columbia (LWBC), a Provincial Crown Corporation, has the primary responsibility for marketing and brokering the sale of crown lands, land-use designations are required that identify large area for potential development. Having areas designated for property development is a key element in the process of land development. The LRMP process can assist with the first step in this process.

To assist LWBC in meeting market demand for development property, land-use designations for this purpose are required. Once areas are allocated LWBC has the social direction it needs to begin marketing areas for development. The Regional District of Bulkley-Nechako should then work with other provincial ministries (MWLAP and MoF) to zone suitable recreational lots for development.

Identified Opportunities

Table 27 lists the Economic Development Action Plan Working Group's Land Development / Infrastructure opportunities and their respective rankings.

Table 27. Identified Land Development / Infrastructure Opportunities and Rankings

Opportunities	Ranking
Recreational lot development	21

Only one opportunity was identified for the Land Development / Infrastructure Sector; recreational lot development. For consistency of process it was rated using the ranking criteria. The following section explores the criteria and conditions for developing this opportunity.

For further information on these and other economic development opportunities interested individuals are asked to review the Ministry of Sustainable Resource Management, Building Blocks. Information on these Building Blocks can be obtained online at http://srmwww.gov.bc.ca/rmd/ecdev/analysis/building_blocks.htm .

Recreational Lot Development

Overview

Most of the interest in recreational lot development has focused on lakeshore and river front properties. An analysis of the requirements for recreational lot development is needed. Of particular interest to many is the need to know what constitutes a high valued recreation lot development area and what the economic benefits for such a venture are.

Opportunity Analysis

There are three critical issues to address in developing land: location quality and demand for the location, relative price of the raw product and project timing.

Recreational lot development is actually of two types: 'commuter' lots and 'recreational' lots. Commuter lots are properties within 15 km of employment centers where purchasers choose to build their principle home on or over-looking the water. Tyhee Lake in Smithers is an example. Recreational properties are typically more than 15 km from employment centers and support the secondary cottage lifestyle. Recreational properties are usually on or over-looking water but may be simply escape properties many hours from an owner's place of employment.

Location Analysis

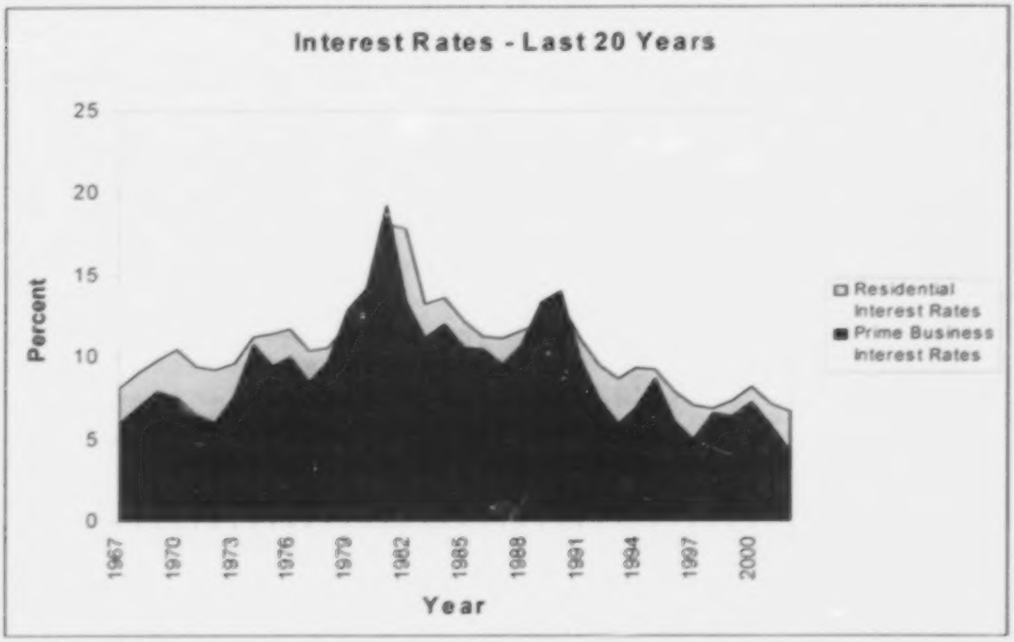
Demand for lots is highest on, or over-looking, water. There are sub-categories of recreational properties that planners could focus on. Power boaters prefer larger lakes, while canoeists prefer smaller chain-lake systems. Sail boaters are less sensitive to size of lake but are dependent upon wind availability and conditions. Fishers are dependent upon stocked lakes. Planners anticipating recreational lot development need to align product development with local recreational demand and select location quality to match potential customer needs. No attempt has been made in this opportunity analysis to define specific recreational demand but doing so prior to site selection is a critical issue for planners. Also, it is critical for planners to determine local recreational lakes that are most suitable for fishers, power boaters, canoeists and sailors, and to determine within over-arching planning guidelines which potential developments support local planning objectives and should be fostered, and which developments would conflict with local planning objectives and should be discouraged.

Market Analysis

Developers of successful major land developments attempt to secure development product (raw land) early in the business cycle while land costs are relatively low and interest rates are at the bottom of their traditional cycles. Typically, this means optioning property in the bottom of a recession when they can secure lines of credit at low rates with confidence that rates will remain low long enough that product can be both developed and sold before they get caught in another downward economic trend.

Currently, land prices generally have been under strong upward pressure due to ripple effects of an urban price boom typical of upward movement in the business cycle, and in the current environment resulting from artificially low interest rates and easy credit. Interest rates were at 50 year lows in July of 2003, although long-term interest rates began to rise in August of 2003. The resulting housing boom, both in the USA and Canada, had raised new housing construction and resale sales patterns above annual long-term highs, and, following historical cycles, new housing trends are expected to start falling. The beginning of the decline in housing sales trends is evident in many regions now. Locally, sales are beginning to indicate a slowing pattern. Interviews with local realtors in Houston and Smithers indicate the only properties that are locally holding their value are waterfront recreational lands. It was reported that American purchasers looking to hedge investments against other low interest opportunities are the main source of market demand at this time. Figure 19 shows the interest rates for the last 20 years for residential interest rates and prime business interest rates.

Figure 19. Interest Rates for the Last 20 Years



Source: Canada Mortgage and Housing Corporation

It is too early to identify with accuracy when and how quickly domestic (local purchasing) housing (and land) price and sales trends will flatten and fall as this will be determined by consumer confidence, which in turn is influenced by employment confidence or fear. However, in the local market area, we are faced with serious recent employment losses and low consumer confidence while simultaneously the urban ripple effect has driven land prices upward. The recent decision by ski resort developers in Smithers to not proceed at this time is another weakening indicator. Building permit data confirms local landowners have become very conservative and new construction has already declined. Table 28 shows the building permit data for the Regional District of Bulkley-Nechako. It was impossible to isolate building permit data for the specific planning area of this study. However the Regional District of Bulkley-Nechako data is representative of the region as a whole.

Table 28. Regional District of Bulkley-Nechako Building Permit Data

PERMITS	1999	2000	2001	2002	2003 To Date
#	144	140	118	115	64
$	$6,806,482	$5,907,653	6,540,615	$4,490,349	$2,625,690
Averaged $/Permit	$47,000	$42,000	$55,000	$39,000	$41,000

In order to interpret the table, one must remember permits are issued for foundations for mobile homes, installation of wood stoves and fireplaces, minor renovations, carports and roofs over mobile homes. An interview with the building inspector indicates that new home construction represents a very low portion of the permits throughout the area. This is with the exception of Vanderhoof (increased 10% over the past five years due to a mill) and Smithers (increased 1% due to speculation of ski development expansion which has now been cancelled). The building inspector speculates that in 2003 new permits will be well less than 100, the lowest number of projects undertaken in the past five years.

The dichotomy of deteriorating new construction trends and high land prices is partly influenced by recent easy credit; particularly floating variable rate loans that have been at all time lows. However, as stated earlier, long term rates have just begun to rise and when interest rate increases impact short-term loans such as variable rate loans, increasing interest costs will negatively impact borrowers and land prices will destabilize to lower levels. New construction will remain at very low levels and land will be available at lower relative prices in the future.

An inherent issue of real estate development is a typically long product development cycle between land purchase, development, and eventual sale. The borrowing interest holding costs can drive a project into bankruptcy if sales are delayed due to future market softness, which is currently expected.

Thus, between an artificially high land cost component and the anticipation of increased interest costs, it is important to not purchase or secure lands at this point in the cycle. It is however the very time to identify potential locations and secure cooperation for specific sites from BC Lands and Water Inc., Department of Development and Marketing. Crown land can be sold to developers for recreational site developments; however, it is sold based upon current appraised land values. It is important to establish the base-line market value of the raw land at the bottom of the price curve.

A table showing actual recent sales trends was not available. However, if government project partners have access to the BC Assessment Authority database, this data would be instantly available. The annual cost of the service is $600/year or, alternately, available through the BC Northern Real Estate Board in Prince George.

Conclusion

Further real estate development studies are needed to identify viable sites, project size, type, infrastructure and location, to assure congruence with community planning objectives, and to secure cooperation from Ministry of Lands and Water, but to not purchase or undertake any property development costs at this time.

Recommendations to the LRMP Table

It is the recommendation of this review, if a viable development is desired, that no development of property be undertaken at this time due to local economic hardship, inflated real estate price cycles and limited market demand. Though not currently feasible to recreational lots the following recommendations should be considered:

Recommendation - Further study is needed to identify and protect potential development lands so they are available for development when the local population eventually expands and real estate price cycles stabilize. As employment in the Morice LRMP region grows, expect an increase in demand for the commuter sites. As employment in the region and near the region (Smithers, Telkwa and Burns Lake) grows, expect an increase in demand for cottage/cabin sites.

Recommendation - The LRMP Table should identify lands, surrounding lakes and other landscape features, that are suitable for development given criteria such as existing infrastructure, fish and wildlife values, water quality, distance from settled areas, social values, etc..

Recommendation – The LRMP Table could recommend to the provincial government that a streamlined environmental regulatory system be put in place to govern lake and stream classifications and its impact to future recreational lot development.

Commercial Fishery

Introduction

Commercial fisheries are a vital to the economic well-being of the province. Most jobs associated with this industry are located in coastal communities. The Economic Development Action Plan Working Group has taken an interest in seeing if a commercial fishery could be viable inland. With a multitude of very productive lakes and rivers the possibility of operating such an industry needs to be explored.

Babine Lake is well known for its large returns of sockeye salmon. While other rivers such as the Bulkley and Morice have similar reputations for chinook, pink and coho the numbers of returning salmon do not approach those of the Babine sockeye.

In addition to the potential harvest of wild sockeye salmon from the Babine River system inland aquaculture (or fish farming) was thought to be an opportunity worth exploring.

Sector Development Strategy

First Nations would likely operate any commercial salmon fishery in the Morice. The Lake Babine Nation community of Fort Babine is situated at the outflow of Babine Lake. During seasons of large sockeye returns individuals from Fort Babine could operate a commercial fishery. To ensure a continued viable fishery, spawning grounds have to be protected, salmon enhancement programs would have to be maintained and better federal control of the commercial ocean fishery would be in place. To achieve this, the LRMP could impose land-use designations and special management directives designed to protect salmon stocks in Lake Babine.

Even with these controls in place a commercial fishery is prone to short fishing seasons and uncertainty of the seasonal returns of salmon. To make a commercial fishery viable the enterprise would have to investigate alternative uses for fish waste and/or fish roe.

In addition to operating a commercial salmon fishery there may be opportunities associated with developing inland aquaculture sites. Francois Lake and Babine Lake are large cold lakes that could potentially house inland aquaculture operations. In order to develop this potion of a fishery zoning these lakes for aquaculture use is necessary. Consideration also has to be made for shoreline access to fish pens. Though an inland aquaculture operation is primarily water based there is a need for shoreline access for maintenance purposes. The LRMP can assist in meeting these strategic needs of the commercial fishery sector

The following sections explore the criteria and conditions for developing these opportunities.

Identified Opportunities

Table 29 lists the Economic Development Action Plan Working Group's Commercial Fishery opportunities and their respective rankings.

Table 29. Identified Commercial Fishery Opportunities and Rankings

Opportunities	Ranking
Fish Processing Plant/roe production	23
Inland Aquaculture	21
Freshwater pearls	19

The Working Group identified three opportunities in the Commercial Fishery Sector. Upon completing the ranking process the ratings indicated that fish processing and inland aquaculture were of significant value to pursue a technical analysis of their viability. It was decided that any opportunity associated with the production of freshwater pearls would have a negligible impact on the local economy and thus did not warrant any further analysis.

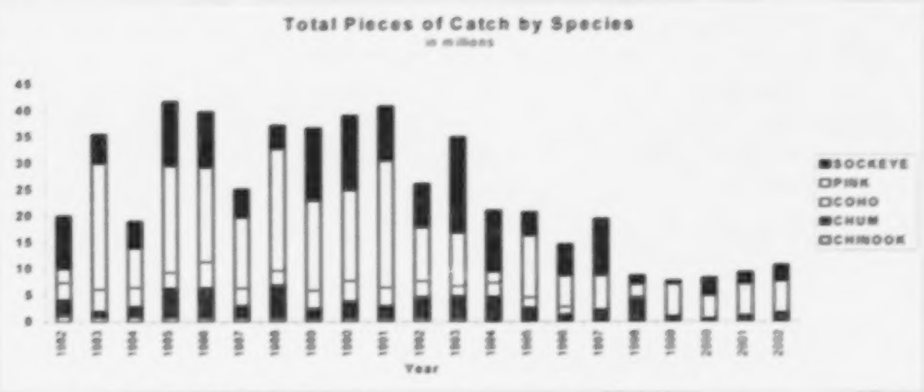
For further information on these and other economic development opportunities interested individuals are asked to review the Ministry of Sustainable Resource Management, Building Blocks. Information on these Building Blocks can be obtained online at http://srmwww.gov.bc.ca/rmd/ecdev/analysis/building_blocks.htm .

Fish and Roe Processing Plant

Overview

There are 5 types of commercially caught salmon – sockeye, pink, coho, chum and chinook. Figure 20 shows the total number of pieces (fish) of salmon caught in BC waters between 1982 and 2002. Over the last five years, there have been very few chinook and coho caught for conservation reasons (mainly just as by-catch), with chum (1.4 million in 2002), sockeye (3 million in 2002) and pinks (5.9 million in 2002) being the primary commercial species. It is important to note that, in 1982, 1.2 million chinook were caught with a value of $31.2 million at the landing dock and 3.2 million coho were caught with a value of $26.1 million. During the 1980s and most of the 1990s, with the exception of 1982 and 1984, the annual volume of catch of all salmon was at least double the annual catch over the last 5 years. The volume of fish available, and therefore volume caught, is down significantly over last 20 years.

Figure 20. Total Pieces of Catch by Species



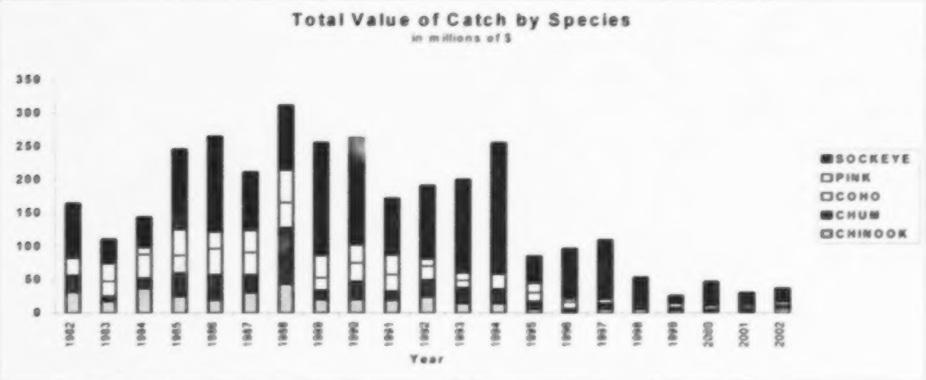
Source: BC Salmon Market Database

The value of salmon caught in 2002 was $37.45 million of which sockeye made up 57% of the value (Figure 21) while they made up only 34% of the weight pointing to the higher price paid for sockeye over other types of salmon.

Salmon processing in BC takes place at the coast as historically all commercial fishing took place at sea or at the mouth of key rivers, e.g. Fraser, Skeena, and Nass. The move to more selectively regenerate stocks has required the Federal Department of Fisheries

(DFO)[21] to limit commercial fishing at sea and at the mouth of major rivers when stocks from a variety of sources are migrating together. The impact of these decisions in areas where runs are strong, e.g. Babine Lake sockeye run, is an over abundance of fish at specific locations inland on specific years.

Figure 21. Total Value of Catch by Species



Source: BC Salmon Market Database

Lake Babine Sockeye Run

The main salmon species, surplus to escapement needs, on the Babine River is sockeye. Figure 22 shows the sockeye count on the river, 560 km from the ocean, up to August 20 each year for the last 23 years. In low or late run, years (1997, 1999, and 2002) between 200,000 and 300,000 sockeye are counted coming through the Lake Babine fence before August 21. In heavy or early years (2000, 2001 & 2003), the number varies from 875,000 to 1.41 million. If escapement requirements in 2000 were 400,000, many more than 1 million sockeye (29% more than was caught in all of BC that year) would have been available for harvest. It is critical to understand the significance of the size of the Babine River sockeye run relative to all the sockeye caught in BC. There is a wide variability on timing of the run and size of the run by August 20 each year over the last 23 years.

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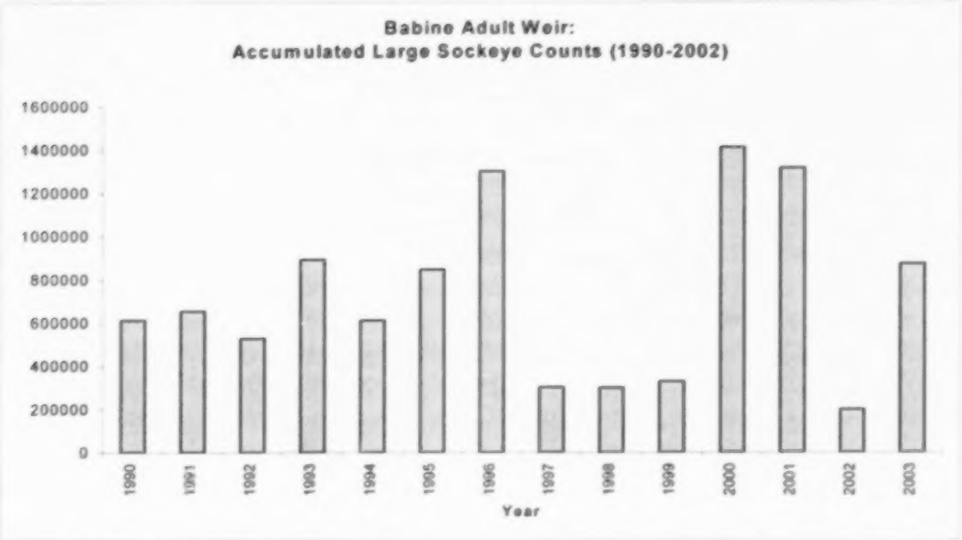
[21] All fish in salt water are federal responsibility in Canada – British North American Act 1867, Section 93.

Figure 22. Babine Adult Weir: Accumulated Large Sockeye Counts (1990- 2002)



Source: Fisheries and Oceans Canada - Pacific Region

Fish Processing - Viability

Fish processing facilities have the on-going limitation of being able to operate only when fish are available. In the case of the Babine River, when sockeye would become available commercially is at some point in the season when DFO estimates that the required escapement has or will be reached. The viability of a fish processing plant depends on the regular annual supply of fish, the quality of the fish and their success at marketing the fish at prices greater than the cost to purchase, process, hold, sell and transport the fish.

Fish processing plants, the world over, struggle where there is a large volume of fish that arrives over a short period of time and none the rest of the year. To deal with the large volume over a short period of time requires substantial investment in plant and equipment. The large investment is in flash and holding freezers and/or canning lines. A processing facility on the Babine would face this challenge.

To protect the general public, and the valuable West Coast salmon markets, the federal government has imposed strict regulations on the building and operating of fish processing plants including the handling of waste material (awful). These restrictions add to the price of constructing the building to hold the fish processing facility, well above the cost of usual industrial buildings.

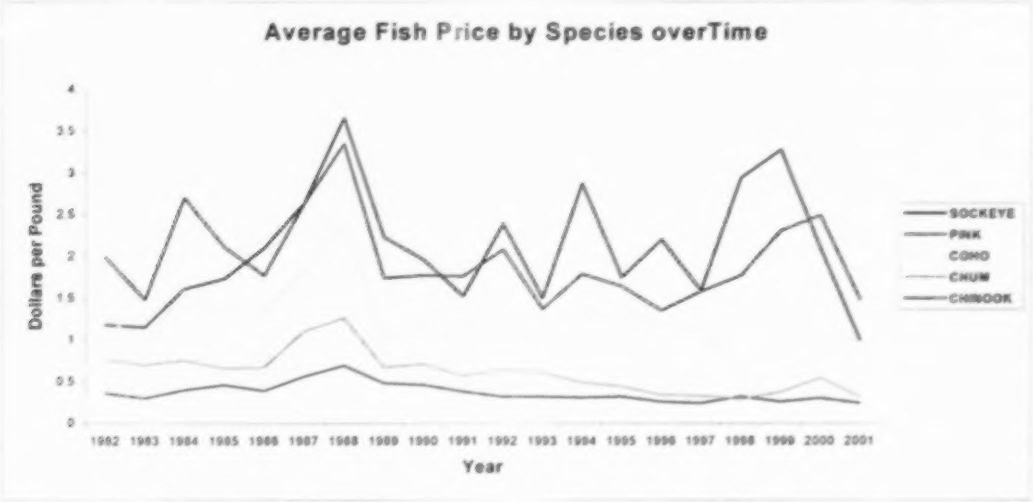
Markets – River Fish Sockeye and Roe

Canadian sockeye has two main products and two main markets. Its dark read flesh holds strong demand in Japan as a whole frozen dressed product and in the UK as a canned product. In 2000, 85% of all frozen sockeye went to Japan (1989 tonnes). In the same year, 79% of canned sockeye exports went to the UK (1654 tonnes) and 12% more to Australia. Historically, only 8% are sold fresh.

The strong Japanese economy in the 1980s and 1990s combined with the Japan's "insatiable desire for red-fleshed fish"[22] created a premium price for Canadian sockeye salmon. In the late 1990s and early 2000s, prices have softened as a result of the slump in the Japanese economy and the growth of farmed salmon from Norway (trout) and Chilean coho. In 2000-01, Japan still imported a record volume of salmon but sockeye comprised only 20% of the total down from 57% in 1993-94. "Prolonged recession, the weak yen and influx of farmed fish have changed Japanese consumers purchasing habits altogether."[23] This fall in demand for BC sockeye has resulted in a significant drop in the recent price of sockeye as shown in Figure 23. The dominance of these two markets forces processors to have to guess what amounts to freeze and what amounts to can to maximize revenues.

River fish in general are sold at lower prices than fish caught in the ocean given (often assumed) quality differences. Fish caught at the Lake Babine weir have traveled 560 km from the ocean and are therefore they are assumed to be in poorer shape than ocean salmon. There are a few exceptions where fish are caught relatively short distances up short rivers, e.g. Taku River (20 km from the mouth) and achieve the same price as sea caught fish.

Figure 23. Average Fish Price by Species over Time



Source: BC Salmon Market Database

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[22] Agriculture and Agri-Food Canada. Fish and Seafood Online – Fact Sheets – Pacific Sockeye Salmon, page 6.

[23] Agriculture and Agri-Food Canada. Fish and Seafood Online – Fact Sheets – Pacific Sockeye Salmon, page 6.

The market for very poor quality fish is as a high protein component in feed for agriculture and aquaculture. Surplus poor quality river salmon that return to some of the very successful hatcheries, e.g. Nanaimo in the 1980s, has been processed into salmon meal that is mixed with other ingredients to form high quality food for the growing salmon farm industry.

ROYAL/IAN BOSTON
FINE CAVIARS

Salmon Roe

Sockeye roe sold in the sack, *sujiko,* is also a product sold to Japan. Cleaning and selling roe from the females that are caught is a by-product of harvesting river fish. Carefully handled, this by-product would add to the viability of processing Babine Lake sockeye.

Marketing river salmon from a remote part of BC would present a few, presently uncharted, challenges. The business would need to understand and select what roles and what marketing channels would they use to sell a substantial additional volume of sockeye into international markets.

Opportunity Analysis

An opportunity exists for the catching and processing of Lake Babine sockeye, if a regular commercial fishery can be established. The processing plant would need to successfully deal with the fluctuations in supply. One solution would be to process only a set amount of the better quality fish, e.g. 100,000 pieces each year (5 lbs. average would make 500,000 lbs. available each year) that matches the capacity of a viable smaller scale operation. Processors have been able to operate successful small-scale operations with 250,000 lbs. of fish and this processor might be able to depend on at least 500,000 lbs. of fish. In addition, a fishmeal plant could be established with lower cost drying technology (drums or waste heat from wood processors) to deal effectively with a similar volume of low quality fish. To extend the season of the processing plant, specialty products can be made from the salmon that was cleaned and frozen initially and then thawed and reprocessed. Reprocessing is how the smoked salmon industry works for example.

Community level processing plants have been analyzed for many coastal communities in BC and Alaska. University of Alaska has even put out a comprehensive handbook "A Village Fish Processing Plant: Yes or No? A Planning Handbook (2001)", to assist communities to assess the viability of establishing their own processing plant. In this case, a comprehensive business plan would provide the foundation for deciding how to effectively maximize the value of this resource while minimizing the business and financial risks.

Location Analysis

If a commercial sockeye salmon fishery were established on Lake Babine then to develop a processing facility would require the following:

- Access to low cost quality fresh water, gravity feed with no processing required, for making ice and cleaning fish, equipment and the building,
- Easy road access to the fishing grounds given the large volume of fish that might be available in short periods of time,
- Easy access to three phase power to operate the freezers and other processing equipment,
- Access to a work force that is prepared to work long hours over a relatively short season each year, with skills in processing fish,
- Access to a low cost heat supply if fish meal is to be produced from the low quality fish,
- A low cost waste disposal system to deal with the fish offal, and
- Good road access for semi-trailer trucks for shipping finished products.

It is critical to note that the success of the Lake Babine sockeye run is heavily dependent on sustaining the high quality spawning grounds (similar to other salmon species). In addition, the quality of the Lake is critical for sockeye as they stay in the Lake for their first year prior to traveling to the ocean, a pattern exclusive to sockeye.

Recommendations to the LRMP Table

To assist the commercial fishery the LRMP should consider the following recommendations:

Recommendation - Salmon spawning habitat needs to be identified and the quality of this habit needs to be maintained.

Recommendation - Water quality should be maintained in Babine Lake to support the fishery.

Recommendation - Access to key fishing grounds should be maintained.

INLAND AQUACULTURE

Overview

The inland aquaculture industry in Canada commercially is limited to Trout including Arctic Char, steel head and other minor species. The inland aquaculture industry in BC with production of 119 tonnes in 2001 is dwarfed by the large saltwater aquaculture industry in BC based primarily on Atlantic Salmon of 67,700 tonnes in 2001. There is considerable experience in BC and Canada operating trout farms (non-Char) both as U-Catch- Em operations and as a food production. In Ontario the combination of U-fish and commercial sales topped 4,100 tonnes in 2001. In Ontario and a few other provinces, there is a historic and current demand for fresh trout that is not reflected in local demand in BC where salmon is far more common.

In the Morice LRMP area there are many large cold lakes that may hold opportunities for trout production including Arctic Char.

Trout farms have been very successful in areas of BC and Ontario where there is U-Catch-Em component (Table 30) because the value per weight is often more than double that of commercial fresh cleaned fish. Fresh Trout is a delicacy in restaurants and speciality fish stores in many parts of Canada and forms the basis of much of the industry. Very little of the Trout is sold frozen as it only usually harvested to match current fresh orders. Idaho has a significant number of commercial trout farms, which have been very successful, where the operation is situated on inland gravity flow springs or artisan wells.

Table 30. BC Freshwater Trout Aquaculture Harvest and Landed Value 1994 – 2001

Year	Food Market Sales		U-Catch-Em Sales		Total	
	Harvest (tonnes)	Landed Value ($,000)	Harvest (tonnes)	Landed Value ($'000)	Harvest (tonnes)	Landed Value ($,000)
1994	75	376	39	411	114	787
1995	85	430	11	105	96	535
1996	74	391	19	204	93	595
1997	139	596	16	201	155	797
1998	59	347	16	188	75	535
1999	75	372	21	180	96	452
2000	50	275	15	188	65	463
2001	94	420	25	316	119	736

Source: Ministry of Agriculture, Food & Fisheries: Fisheries Statistics

Table 31. BC Freshwater Trout Aquaculture Average Prices 1994 - 2001

[redacted]		
Year	**Food Market Sales**	**U-Catch-Em Sales**
	Avg. $/kg	**Avg. $/kg**
1994	5.04	10.57
1995	5.08	9.87
1996	5.26	10.72
1997	4.28	12.68
1998	5.92	11.77
1999	4.95	8.41
2000	5.48	12.48
2001	4.47	12.45

Source: Ministry of Agriculture, Food & Fisheries: Fisheries Statistics

Arctic Char is another fish that is making significant market penetration. The Arctic Char is raised in fresh water and resembles salmon in taste, texture and growth habits. Arctic Char is being grown quite successfully in the Yukon by Icy Waters Inc. and exported fresh to many locations in Canada and US.

Opportunity Analysis

There are three separate markets for trout and Arctic Char as follows:

- fresh Trout and Char to restaurants,
- fresh Trout and Char to speciality stores, and
- U-Catch-Em

Regionally the lack of population combined with readily available wild stocks of trout makes a U-Catch-Em operation very unlikely in the Morice. Supplying fresh trout into the regional market both restaurants and stores is most likely similar to rest of BC with only a very small market given market preferences for salmon and the low population base in the region. This small demand is expected to limit the operation to marginal at best.

To follow the markets as being established by Icy Waters Inc. will require operations focused on Arctic Char using an excellent supply of spring water (Figure 24).

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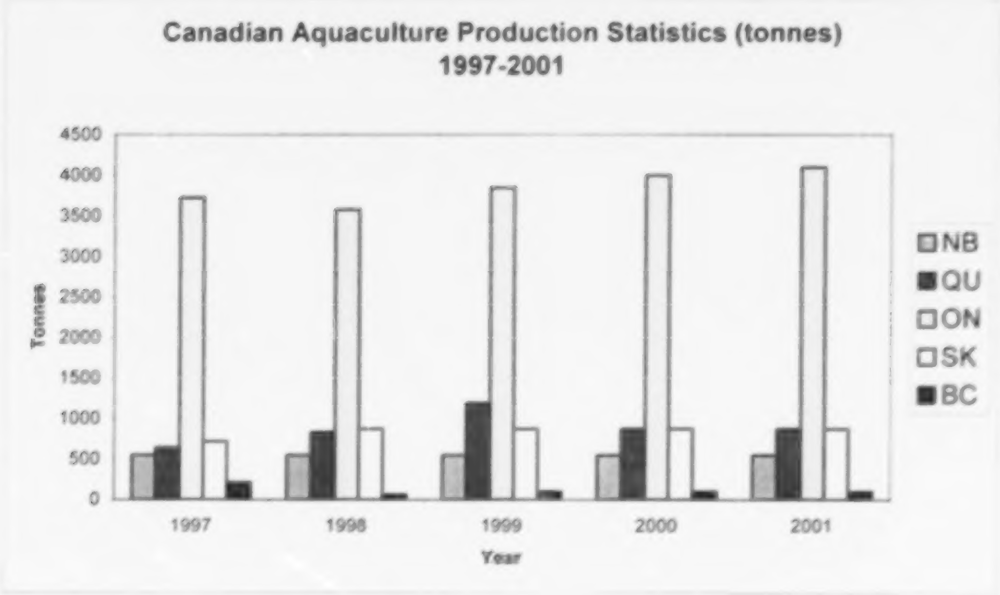
To follow the markets as being established by Icy Waters Inc. will require operations focused on Arctic Char using an excellent supply of spring water (Figure 24).

Figure 24. Canadian Aquaculture Production Statistics (tonnes) 1997 - 2001



Source: Ministry of Agriculture, Food & Fisheries: Fisheries Statistics

Location Analysis

The four key factors for making an inland Arctic Char operation viable are quality consistent temperature spring water, availability of electrical power, road access to bring in feed and take out finished product and access to roads and an airport for exporting fresh fish into urban markets.

Quality Water Requirement

The price of frozen trout is too low to be commercially viable and therefore only fresh and U-Catch-Em operations are viable. These tight profit margins require the operations to have low costs, and this means maintaining high survival rates at a low cost. The combination of the high survival rates and low cost is usually obtained by having a consistent supply of constant cool temperate fresh water flowing through the grow-out tanks. This consistent supply of low cost, constant temperature water is usually obtained through gravity feed springs or artisan wells.

Successful inland aquaculture operations that raise trout rely on a consistent supply, 12 months of year, of a significant flow of consistent temperature fresh water. The constant flow of consistent temperature fresh water needs to be available without additional pumping costs. It is the combination of low temperature and constant flow that minimizes disease and therefore maximizes survival rates and revenue for the operation. It is worth noting that Icy Waters Inc. operates with spring water in the Yukon.

Market Analysis

The market for farmed Arctic Char is growing following the significant growth in the demand for all fresh red-fleshed farmed salmon. The consistent availability of fresh fish, combined with the decline in available fresh wild stocks has increased the demand for farmed fish. In addition, the increase in the demand for fish in general and salmon in particular in the higher end markets in the Pacific Northwest has created a solid opening for continued expansion of the fresh Arctic Char market.

Recommendations to the LRMP Table

Given the limitations imposed on developing an inland aquaculture industry this type of opportunity is not considered viable for the Morice. Factors such as; an abundant supply of wild stock, access of fresh product to major markets and a relatively low market demand does not make the Morice a suitable location for this type of industry. The LRMP Table need not consider this opportunity during its decision making process.

Summary Matrix of Opportunities

Table 32. Summary Matrix of Opportunities

Opportunity	Page #	Is Opportunity Viable?	Potential for Environmental Impact		Management Considerations		Economic Benefits	
			Terrestrial	Aquatic	Other industrial use permitted?	Access required to be maintained	Job Creation Potential	Likelihood of Development within 5 years
Agriculture								
Barley Production	137	No	-----------	-----------	-----------	-----------	-----------	-----------
Market Gardening (direct purchase from grower)	138	No	-----------	-----------	-----------	-----------	-----------	-----------
Agricultural Tours (including dude ranching)	140	Yes	Low	Low	No	Yes	Low	Low
Commercial Fishery								
Fish Processing Plant/Roe Production	150	Yes	Low	Moderate	No	Yes	Low	Low
Inland Aquaculture	155	No	-----------	-----------	-----------	-----------	-----------	-----------
Forestry								
Fuel Production (Cogen)	23	Yes	Low	Low	Yes	Yes	High	High
Engineered Wood Products	37	Yes	Low	Moderate	Yes	Yes	Moderate	Moderate
Medium Density Fibre Board Mill	31	Yes	Low	Moderate	Yes	Yes	Moderate	Moderate
Land Dev / Infrastructure								
Recreational Lot Development	144	Yes	Moderate	Moderate	No	Yes	Low	High
Non-Timber Forest Products								
Cultural and Traditional Use Products	109	Yes	Low	Low	No	Yes	Low	Low
Manage Species for Pharmaceutical Development	116	Yes	Low	Low	No	Yes	Low	small scale
Willow Furniture	129	Yes	Low	Low	Yes	Yes	Low	Low - Mod
Tourism								
Hiking Trails	77	Yes	Low	Low	No	Yes	Low	Mod-High
House Boating	82	Yes	Low	Moderate	No	No	Low	Low - Mod
Smowmobile Tours / Destination Snowmobiling	85	Yes	Moderate	Low	No	Yes	Low	High
Tour Package Marketer (works for all tour operators in area)	103	Yes	Low	Low	Yes	N/A	Low	High
Commercial Rec. Site Development	90	No	-----------	-----------	-----------	-----------	-----------	-----------
First Nations Cultural Heritage Site development	95	Yes	Low	Low	No	Yes	Low	Moderate
Guided Tours of Historic Mines / Prospecting Tours	97	Yes	Low	Low	Yes	Yes	Low	Low - Mod
Minerals, Oil, Gas and Energy								
Medium to Large Scale Open Pit Mines	49	Yes	Low - Mod	Low - Mod	Yes	Yes	High	High
Small to Medium Underground Operations	56	Yes	Low - Mod	Low - Mod	Yes	Yes	High	Moderate
Devel. of Copper Smelter	62	No	-----------	-----------	-----------	-----------	-----------	-----------
Development of Oil and Gas	66	Yes	Low - Mod	Low - Mod	Yes	Yes	High	High

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APPENDIX 1: Summary of Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis

Acknowledgements

The SWOT process used for the Morice Economic Development Action Plan was similar to one used in the North Coast LRMP. Thanks go to Robinson Consulting for allowing us to use this system.

Process

Two brainstorming sessions were required to complete the SWOT Analysis. Both sessions were structured to encourage attendee's participation. Following an introduction to, and description of how to conduct a SWOT analysis, the first task addressed in the session was to confirm the economic sectors to be analyzed. An extensive list of sectors was proposed. During a collaborative discussion on the merits of keeping, combining or eliminating sectors the group agreed to analyze the following sectors:

- Forestry
- Tourism
- Commercial Fishing
- Mineral, Oil & Gas and Energy
- Non-Timber Forest Products
- Land Development / Infrastructure
- Agriculture

Participants were randomly allocated to a number of small working groups. Over two, three-hour sessions each working group independently conducted SWOT analysis of the 7 sectors. At the completion of this phase, a working group presented their SWOT analysis of the sector to the session. The other working groups were invited to add significant elements from their analysis to the SWOT presented. Through this process the small working groups were consolidated into one. The consolidated sheets are found at the end of this analysis report.

At this stage, the SWOT analysis was comprised of more than 200 entries. To provide a sense of priority, each participant was given 8 markers and asked to place a marker beside an element they considered relatively important. The facilitator did not define importance, so the results reflect individual criteria. Participants were asked to particularly consider the "Opportunities" identified in ranking priority.

The final step attempted to associate the indicated priority SWOT elements to the land base and to the LRMP. Participants were asked to consider two simple questions:

1. Does the opportunity involve the use of non-private land or resources? If yes place a marker beside it.
2. How can the LRMP help realize the opportunity?

Participants had available an unlimited number of markers for this selection with the restriction that the individual would "vote" no more than once for a given opportunity.

Upon completion of this selection, the session resumed. The facilitator led the group discussion particularly identifying the perceived linkage between the opportunity and the LRMP. Time permitted a discussion of the results.

Findings

It is noted that the findings of the session are related to the interests of the individuals participating in the process among other things.

A summation of the markers suggested the group's hierarchy of the seven sectors. Surprising was the relative ranking of Forestry and Mining. Widely known as the backbone of the local economy, tourism seems to have taken top billing in order of priority for local economic development. The ranking of forestry and mining could be explained by the number of participants at the meeting who work in those fields.

Number of Markers by Sector (in order of total markers)

Sector	**Relative Importance**	placing	**Influence**	placing
Tourism	45	1	130	1
Forestry	26	2	77	2
Non-timber	24	3	33	6
Land Dev/Infrastructure	22	4	71	4
Minerals/oil/Gas	16	5	74	3
Agriculture	14	6	34	5
Commercial Fishery	11	7	30	7

Tourism appeared to be a sector with high degree of attention. The point was made that members of the working group should be aware of this as it may influence the opportunities discussion during the remainder of the EDAP process. There may also be a need to balance the membership at the EDAP Working Group to reflect the rankings of each sector.

Equally interesting was the importance members placed on Non-Timber Forest Products. Ranking ahead of mining and agriculture those at the meeting felt that more emphasis should be placed on expanding this area of the local economy. Again, this might be explained by the representation of individuals at the meeting.

For those elements where participants place a marker (indicate priority, or linkage to the non-private land base), the following key was adopted:

1 marker: **low**
2-3 markers: **moderate**
4+ markers: **high**

The discussion of the linkage between an opportunity and the LRMP indicated various "influence" mechanisms. This included

- Appropriate land zoning (e.g. to better utilize both low and high productivity sites for forestry),
- Recommending policy changes (e.g. tenure reform in forestry and tourism), and
- Changing attitudes of LRMP participants in the planning process (e.g. facilitate First Nations partnerships).

Those sectors that show low influence may indicate that the sector opportunities are outside of the influence of the LRMP or that an opportunity could be immediately acted upon or it could mean that the working group did not have adequate representation from that sector.

The Group was reminded that this was a training and learning exercise. The results basically are to create an awareness of the interests the collective group has towards economic development. It was pointed out that the group should be aware of this fact when discussions of opportunities occur. Again, the group may want to ask individuals, who don't sit on the working group, involved with sectors not having adequate representation at the working group, to provide their input on opportunities.

The Group was concerned that small businesses/entrepreneurs make up the fastest growing industry in the province. Rather than only look at large industries with large payrolls we should also be considering small businesses.

SWOT Sector Analysis Results for the Morice LRMP area

Land Development / Infrastructure

Strengths

- Undeveloped land
- Rural character and sense of place
- Undeveloped lakeshore

Weaknesses

- Government policy
- Small population
- Economy of scales
- Lack of opportunities for professionals and specialists
- Lack of health facilities and opportunities i.e. health spas, yoga etc

Opportunities

- Outdoor / environmental education centre
- Recreational property development
- Mining education
- Improvement of infrastructure i.e. transportation (container ports) and telecommunications
- Forest education i.e. a field school
- Health spas/lodges
- Conservation related products (i.e. bat houses)
- Lake shore lot development
- Centre of excellence for Resource development
- Partnership with established educational institutes and health institutes

Threats

- Centralization of services
- Population decline
- Land claims and land use decisions
- Logging / fire

Non-Timber Forest Products

Strengths

- Diversity of ecosystems provides a variety of products
- Knowledge both local and First Nations
- Large land base
- World wide market
- Good access/transportation
- Seasonal worker knowledge and availability
- Low impact

Weaknesses

- Unorganized market for botanicals

- Trapping is controlled by the current tenure system
- Lack of inventory
- Lack of management
- Not registering on radar
- Lack of development of ideas
- Distance to markets

Opportunities

- Exploit opportunities that exist
- Opportunities around logging and fire
- Processing (local)
- Value added
- Unidentified undeveloped resources
- Cultural and traditional use products
- New market trends towards organics
- Potential for pharmaceutical development
- Berry production i.e. exceptional flavour, colour, varieties
- Organized marketing of products (potential for coop)
- Willow furniture
- Essential oils
- Fur farming
- Value added fur products
- First Nations tanning process
- Floral production

Threats

- Trapping is affected by global public opinion
- Unregulated harvest i.e. could be too many mushroom pickers
- Environmental degradation
- Social intolerance
- Logging / fire

Minerals, Oil, Gas & Energy

Strengths

- World class mineral prospects
- Extremely good infrastructure
- Skilled regional workforce
- Transportation modes i.e. rail, roads, ports
- Skilled management
- Good prospectors
- Cogen supply
- Rich mineral base
- Aggregate resources
- Potential for hydroelectric i.e. Fulton Falls and others

Weaknesses

- Government policies
- Environmental effects, issues
- Cost of development and operations
- Small aggregate market (compared to Vancouver)
- Conflict with other users
- Loss of professional expertise

Opportunities

- Medium to large scale open pit mines
- Small to medium scale underground operations
- Precious metals i.e. copper, lead, zinc
- Gem stone production (opals)
- Value added local jewellery production
- Advanced metals i.e. gallium and germanium
- Reworking tailings
- Coal bed methane production
- Mining education
- Gravel pit/aggregate production
- Copper smelter
- Limestone production

Threats

- World market
- Other suppliers plus global competition (Argentina)
- Land claims and land use decisions
- Public perception
- Environmental concerns

Agriculture

Strengths

- Undeveloped land
- Skilled farm labour
- Transportation network i.e. highway, rail, ports
- Quality range
- Quality soils
- Climate
- Some crops excel
- "Organic"

Weaknesses

- Limited growing season
- Tenure process
- Limited amount of suitable land
- Supply side management i.e. supply boards
- Price of land

- Distance from market
- Wildlife / stock conflicts
- Conflict with riparian areas
- Short growing season

Opportunities

- Possibility for pork production
- Large expanse of land (farm and range)
- Processing facilities
- Dairy and poultry farming
- Market gardening feed lot
- Organic agriculture products
- Cannery
- Waste heat for Cogen
- Composting
- Using alternative range species (buffalo, elk, deer, boar, etc)
- Hemp production
- Agriculture tours
- Dude ranch development

Threats

- Tariffs; subsidies
- Weather/climate
- Urbanization i.e. rural residential development
- Water quality rules and regulations.
- Range conflicts
- Protected areas
- Inspection/certification requirements
- Loss of agriculture land
- Predators

Commercial Fishery

Strengths

- Large inland lakes i.e. Babine, Morice
- Good fish habitat
- Salmon runs for terminal fishery
- Large sockeye runs

Weaknesses

- Relatively unproductive
- Distance to market
- Limited and slow growing species

Opportunities

- Sockeye in Babine Lake
- Fertilizer with dead fish
- Value added

- Processing
- Aquaculture
- Roe production
- Fish farming for alternative species
- Course fish utilization

Threats

- Commercial ocean fishery
- Global warming
- Habitat loss
- Fluctuating water levels
- Over fishing / supply
- Global competition

Forestry

Strengths

- Low cost production facilities
- Skilled labour i.e. mills and contractors
- High quality fibre supply
- Good infrastructure
- Transportation – highway, rail, port
- Productive growing sites
- Highly capitalized and efficient mills
- Good timber supply
- Established markets
- Suitable climate
- High quality timber
- Renewable
- Experienced labour force

Weaknesses

- Lacks diversity
- Reliant on US market
- Size of forest business
- Tenure system
- Distance from markets
- Lack of local control
- Dependant on few markets
- Environmental regulation
- Complexity of forest certification
- High ate of extraction
- Lack of full utilization
- Lack of product diversity
- Burning/air quality
- Lack of public knowledge

Opportunities

- Intensive forest management
- Under utilized species
- Under utilized fibre
- Value added
- Musical instrument production (supply of birch)
- Log market
- Diversifying markets
- Diversifying products
- Increased production in primary sawmills
- Log home building
- Processing alder and aspen
- Fuel production (Cogen)
- Developing low productivity sites
- Formaldehyde production for waste wood
- Denim wood production from pine beetle timber
- Engineered wood products
- Oriented strand board
- Medium density fibre board

Threats

- Softwood lumbar agreement
- Land claims
- Land use uncertainty
- Other producers i.e. Russia, Scandinavia, Indonesia
- Other products i.e. concrete and steel
- Beetles / fire
- Over regulation
- Declining quality of wood

Tourism

Strengths

- Variety of Natural, unspoiled landscape
- Diverse landscape
- Abundant wildlife, game, sport fishing, wild rivers, lakes
- Mountains
- Cultural heritage
- Low population density
- Highway 16
- Supporting towns and infrastructure

Weaknesses

- Small regional population
- Remote – distance to urban centers
- Lack of multi mode transportation

- No "night life" for skiing opportunities
- Weather
- Seasonal in nature
- Red tape
- Year round road access
- Expense of insurance, supplies etc
- Lack of infrastructure i.e. trails, accommodation
- Lack of workforce and marketing
- Short cool summers

Opportunities

- Hiking trail development
- Historic trails reclamation
- Interpretive trail development
- Opportunities to expand wilderness canoe routs (Nanika –Kidprice)
- House boating
- Cabins
- Fisheries at Granisle
- Destination resorts/lodges
- Integrated markets
- Wildlife viewing
- Photography
- Snowmobiling
- Destination snowmobiling
- Integrated use (snowmobiling& ice fishing)
- Tour packages
- Coordinated marketing
- Developing FS rec. sites
- First Nations cultural heritage
- Provincial Parks
- Guided tours of mills and mines
- Swimming
- Lodge development for fish/hunt guiding
- Develop trophy fish lakes
- Prospecting tours

Threats

- Terrorism – "global geo-politics
- Declining economy
- Similar opportunities in other regions of BC and world
- Cost of travel i.e. airfares
- SARA legislation
- Conflict with other tenures
- Logging
- Beetles
- Overfishing

APPENDIX 2: Northwest Real Estate View

The following graphs illustrate market trends between July 2000 and December 2002. The graphs provide a general overview of the residential market for the community shown. Individual properties may change differently depending on many variables including their age, location, size and quality. (http://www.bcassessment.bc.ca/2_office/25_northwest/2_norw_real.html)